PROFESSOR DIMITRIOS S. NIKOLOPOULOS
John W. Hancock Professor of Engineering, IEEE Fellow
Professor, Department of Computer Science
Professor (by courtesy), Department of Electrical and Computer Engineering
Virginia Tech
Office 4209, Gilbert Place, 220 Gilbert Street
Mailing Address: Suite 1140 Torgersen Hall, 620 Drillfield Drive, Blacksburg VA 24061
Tel. 1-540-231-4260, Email: dsn@vt.edu

Employment History

John W. Hancock Professor in Engineering, Virginia Tech, Aug. 2019–present
Professor, Department of Computer Science, Virginia Tech, Aug. 2019–present
Professor (by courtesy), Department of Electrical and Computer Engineering, Virginia Tech, Aug. 2020–present
Associate Director, Stacks@CS Center for Computer Systems Research, Virginia Tech, Aug. 2022–present
Institute Director, Queen's University Belfast Research Institute in Electronics, Communications and Information Technology (ECIT), Jan. 2018–Aug. 2019
Head of School, School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, Jan. 2016–Aug. 2019
Royal Society Wolfson Research Fellow, Queen's University Belfast, Sep. 2015–present
Professor & Chair in High Performance and Distributed Computing, School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast, Jan. 2012–Aug. 2019
Director, Center for Data Science and Scalable Computing, Queen's University Belfast, Feb. 2016–Aug. 2019
Director, High Performance and Distributed Computing Research Cluster, Queen's University Belfast, January 2012—-February 2016
Adjunct Professor, Department of Computer Science, Virginia Tech, Oct. 2016–August. 2019
Adjunct Professor, Department of Computer Science, Old Dominion University, Oct. 2013–present
Associate Professor with Tenure, Department of Computer Science, University of Crete, Sep. 2009–Jan. 2012
Affiliate Professor, Institute of Computer Science Foundation for Research and Technology (FORTH), September 2009–Jan. 2012
Associate Professor with Tenure, Department of Computer Science, Virginia Tech, Aug. 2008–Sep. 2009
Associate Professor Tenure-Track, Department of Computer Science, Virginia Tech, Aug. 2006–Aug. 2008
Assistant Professor Tenure-Track, Department of Computer Science, College of William & Mary, Aug. 2002–Aug. 2006
Visiting Assistant Professor, Department of Electrical and Computer Engineering, University of Illinois, Urbana-Champaign Jan. 2001—-August. 2002

Earned Degrees

PhD, Computer Engineering and Informatics, University of Patras, 2000
MSc, Computer Engineering and Informatics, University of Patras, 1997
Diploma in Engineering (MEng equivalent), Computer Engineering and Informatics, University of Patras, 1996

Primary Research Areas

High Performance Computing and Computational Science; Computer Systems

Technical Research Interests

System Software: operating systems & virtualization; programming languages & runtime systems
Computing Systems: multiprocessor architectures; heterogeneous systems; data centers; memory & storage technologies.
Performance Engineering: measurement & modeling of computing systems performance, energy, and resilience.

Honors and Awards

[43] **IEEE Fellow**, "For contributions to dynamic execution environments and multiprocessor memory management", 2024

[42] **IEEE Computer Society Distinguished Visitor**, 2024

[41] **Fellow, International Artificial Intelligence Industry Alliance**, 2024

[40] **Fellow, Asia-Pacific Artificial Intelligence Association**, 2023

[39] **Distinguished Contributor, IEEE Computer Society**, 2021

[38] **Best Paper Award**, Design Automation and Test in Europe Conference (DATE), 2020

[37] **IEEE Award for Editorial Excellence, IEEE Transactions on Parallel and Distributed Systems**, 2020

[36] **John W. Hancock Chair in Engineering**, Virginia Tech, 2019–present

[35] **Elsevier Distinguished Editorial Service Award**, 2019

[34] **Distinguished Member of the ACM**, 2018

[33] **IEEE Outstanding Service Award**, 2018

[32] **Fellow of the IET**, 2017

[31] **Investors in People Silver Award**, 2017

[30] **Royal Society Wolfson Research Merit Award**, 2015 (extended to lifetime)

[29] **SFI-DEL Investigator Award**, 2015

[28] **Fellow of the British Computer Society**, 2014

[27] **IEEE Outstanding Service Award**, 2014

[26] **ACM Senior Member**, 2011

[25] **IEEE Senior Member**, 2010

[24] **IEEE Outstanding Service Award**, 2010

[23] **IBM Faculty Award**, 2007

[22] **DOE Early Career Principal Investigator Award**, 2005

[21] **NSF CAREER Award**, 2004

[20] **Marie Curie Fellow**, 2009

[19] **HiPEAC Fellow**, 2008

[18] **HiPEAC Paper Award**, twice in 2020 (for ASPLOS'2020 and MICRO'2020 papers)

[17] **Best Paper Award**, Design Automation and Test in Europe Conference (DATE), 2020

[16] **Best Paper Award**, ACM International Workshop on Code Optimization for Multi and Many Cores (COSMIC), 2013

[15] **Best Paper Award**, ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPOPP), 2007

[14] **Best Paper Nomination**, ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC), 2006

[13] **Best Paper Award**, International Workshop on OpenMP (IWOMP), 2005

[12] **Best Paper Award**, International Symposium on High-Performance Computing (ISHPC), 2003

[11] **Best Paper Award**, IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGRID), 2002

[10] **Best Paper Award**, IEEE/ACM International Parallel and Distributed Processing Symposium (IPDPS), 2002

[9] **Best Paper Award**, IEEE/ACM Supercomputing: High-Performance Computing, Networking, Storage and Analysis Conference (SC), 2000

[8] **Best Paper Award Nomination**, ACM International Conference on Supercomputing (ICS), 2001

[7] **Best Paper Award Nomination**, IEEE/ACM Supercomputing: High-Performance Computing, Networking, Storage, and Analysis Conference (SC), 2001

[6] **Best Paper Award Nomination**, IEEE/ACM International Symposium on Microarchitecture (MICRO), 2020

[5] **Best Paper Award Nomination**, International Conference on Parallel Processing (ICPP), 2010

[4] **Best Paper Award Nomination**, ACM International Conference on Supercomputing (ICS), 1999

[3] **Outstanding Academic Performance Award**, Technical Chamber of Greece, 1996

[2] **Outstanding Academic Performance Award**, Technical Chamber of Greece, 1993

[1] **Outstanding Academic Performance Award**, National Scholarships Foundation of Greece, 1992

Publications

Refereed Publications

Journal Articles

[269] A. Kumar, C. O'Mahoney, P. K. Werle, S. Shanker, D. Nikolopoulos, B. Ji, H. Vandierendonck, and D. John, "Marvel: An end-to-end framework for generating model-class aware custom risc-v extensions for lightweight ai," *IEEE Open Journal of Circuits and Systems*, 2025, Accepted.

[268] M. J. Abdel-Rhaman, E. Mazied, H. Fahid, T. Kory, A. McKenzie, S. Midkiff, K. Cardoso, and D. Nikolopoulos, "On robust optimal joint deployment and assignment of ran intelligent controllers in o-rans," ***IEEE Open Journal of the Communications Society***, vol. 5, pp. 2358–2376, Jan. 2024. DOI: 10.1109/OJCOMS.2024.3383607.

[267] C.-H. Hong, M. Lee, H. Ahn, and D. Nikolopoulos, "Gshare: A centralized gpu memory management framework to enable gpu memory sharing for containers," ***Future Generation Computer Systems***, vol. 130, pp. 181–192, May 2022.

[266] K. Dichev, D. di Sensi, I. Spence, K. Cameron, and D. Nikolopoulos, "Power log'n'roll: Power-efficient localized rollback for mpi applications using logging protocols," ***IEEE Transactions on Parallel and Distributed Systems***, vol. 33, no. 6, pp. 1276–1288, Jun. 2022.

[265] U. Minhas, R. Woods, D. Nikolopoulos, and G. Karakonstantis, "Efficient, dynamic multitask execution on fpga-based computing systems," ***IEEE Transactions on Parallel and Distributed Systems***, vol. 33, no. 3, pp. 710–722, Mar. 2022.

[264] L. Mukhanov, K. Tovletoglou, H. Vandierendonck, D. Nikolopoulos, and G. Karakonstantis, "Revealing dram operating guardbands through workload-aware error predictive modeling," ***IEEE Transactions on Computers***, no. 11, pp. 1976–1987, Nov. 2021.

[263] J. Lee, H. Vandierendonck, and D. Nikolopoulos, "Mixed precision kernel recursive least squares," ***IEEE Transactions on Neural Networks and Learning Systems***, no. 3, pp. 1284–1298, Mar. 2022. DOI: 10.1109/TNNLS.2020.3041677.

[262] J. Sun, H. Vandierendonck, and D. Nikolopoulos, "Fast load balance parallel graph analytics with an automatic data structure selection algorithm," ***Future Generation Computer Systems***, vol. 112, pp. 612–623, Nov. 2020.

[261] J. Lee, G. Peterson, H. Vandierendonck, and D. Nikolopoulos, "Air: Iterative refinement acceleration using arbitrary dynamic precision," ***Parallel Computing***, vol. 97, Sep. 2020, Article: 102663.

[260] N. Wang, B. Varghese, M. Matthaiou, and D. Nikolopoulos, "Dyverse: Dynamic vertical scaling in multi-tenant edge environments," ***Future Generation Computer Systems***, vol. 108, pp. 598–612, Jul. 2020.

[259] H. Vandierendonck and D. Nikolopoulos, "Hyperqueues: Design and Implementation of Deterministic Concurrent Queues," ***ACM Transactions on Parallel Computing***, vol. 6, no. 4, pp. 1–35, Nov. 2019, Article 23.

[258] A. Hassan, H. Vandierendonck, and D. Nikolopoulos, "Fast and Energy-Efficient OLAP Data Management on Hybrid Main Memory Systems," ***IEEE Transactions on Computers***, vol. 63, no. 11, pp. 1597–1611, Nov. 2019.

[257] I. Tsiokanos, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Significance-Driven Data Truncation for Preventing Timing Failures," ***IEEE Transactions on Device and Materials Reliability***, vol. 19, no. 1, pp. 25–36, Mar. 2019.

[256] K. Tovletoglou, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Shimmer: Implementing a Heterogeneous-Reliability DRAM Framework on a Commodity Server," ***IEEE Computer Architecture Letters***, vol. 18, no. 1, pp. 26–29, Jun. 2019. DOI: 10.1109/LCA.2019.2893189.

[255] U. Minhas, M. Russell, S. Kaloutsakis, P. Barber, R. Woods, G. Georgakoudis, C. Gillan, and D. Nikolopoulos, "NanoStreams: A Microserver Architecture for Real-Time Analytics on Fast Data Streams," ***IEEE Transactions on MultiScale Computing Systems***, vol. 4, no. 3, pp. 396–409, 2018.

[254] J.-k. Lee, H. Vandierendonck, M. Arif, G. Peterson, and D. Nikolopoulos, "Energy-Efficient Iterative Refinement using Dynamic Precision," ***IEEE Journal on Emerging and Selected Topics in Circuits and Systems***, vol. 8, no. 4, pp. 722–735, Dec. 2018. DOI: 10.1109/JETCAS.2018.2850665.

[253] C. Gillan, A. Novakovic, A. Marshall, M. Shyamsundar, and D. Nikolopoulos, "Expediting Assessments of Database Performance for Streams of Respiratory Parameters," ***Computers in Biology and Medicine***, vol. 100, no. 1, pp. 186–195, Sep. 2018.

[252] C. Reano, F. Silla, D. Nikolopoulos, and B. Varghese, "Intra-Node Memory Safe GPU Co-Scheduling," ***IEEE Transactions on Parallel and Distributed Systems***, vol. 29, no. 5, pp. 1089–1102, 2018.

[251] P. Thoman, K. Dichev, T. Heller, R. Iakymchuk, X. Aguilar, K. Hasanov, P. Gschwandtner, P. Lemarinier, S. Makridis, H. Jordan, T. Fahringer, K. Katrinis, E. Laure, and D. Nikolopoulos, "A Taxonomy of Task-Based Parallel Programming Technologies for High-Performance Computing," ***The Journal of Supercomputing***, vol. 74, no. 4, pp. 1422–1434, Apr. 2018.

[250] C. Chalios, G. Georgakoudis, K. Tovletoglou, G. Karakonstantis, H. Vandierendonck, and D. Nikolopoulos, "DARE: Data Access Aware Refresh via Spatio-Temporal Application Resilience on Commodity Servers," ***International Journal of High Performance Computing Applications***, vol. 32, no. 1, pp. 74–88, 2018. DOI: 10.1177/1094342017718612. [Online]. Available: http://journals.sagepub.com/doi/10.1177/1094342017718612.

[249] G. Karakonstantis, D. Nikolopoulos, D. Gizopoulos, P. Trancoso, Y. Sazeides, C. Antonopoulos, S. Venugopal, and S. Das, "Error-Resilient Server Ecosystems for Edge and Cloud Datacenters," ***IEEE Computer***, vol. 50, no. 12, pp. 78–82, Dec. 2017.

[248] C. Black, O. Chevalier, S. Haughey, J. Balog, S. Stead, S. Pringler, M. Riina, F. Martucci, P. Acutis, M. Morris, D. Nikolopoulos, Z. Takats, and C. Elliott, "A Real-Time Metabolomic Profiling Approach to Detecting Fish Fraud using Rapid Evaporative Ionization Mass Spectrometry," ***Metabolomics***, vol. 13, no. 153, Nov. 2017. DOI: 10.1007/s11306-017-1291-y.

[247] G. Georgakoudis, H. Vandierendonck, P. Thoman, B. R. de Supinski, T. Fahringer, and D. Nikolopoulos, "SCALO: Scalability-Aware Parallelism Orchestration for Multi-Threaded Workloads," ***ACM Transactions on Architecture and Code Optimization***, vol. 14, no. 4, 54:1–54:25, 2017.

[246] N. Wang, B. Varghese, M. Matthaiou, and D. Nikolopoulos, "ENORM: A Framework For Edge NOde Resource Management," ***IEEE Transactions on Services Computing***, vol. 13, no. 6, pp. 1086–1099, 2020.

[245] C.-H. Hong, I. A. Spence, and D. Nikolopoulos, "FairGV: Fair and Fast GPU Virtualization," ***IEEE Transactions on Parallel and Distributed Systems***, vol. 28, no. 12, pp. 3472–3485, Jun. 2017. DOI: 10.1109/TPDS.2017.2717908.

[244] C.-H. Hong, I. Spence, and D. Nikolopoulos, "GPU Virtualization and Scheduling Methods: A Comprehensive Survey," ***ACM Computing Surveys***, vol. 50, no. 3, 35:1–35:37, Jan. 2017, Article No. 35. DOI: 10.1145/3068281.

[243] L. Mukhanov, P. Petoumenos, Z. Wang, N. Parasyris, D. Nikolopoulos, B. de Supinski, and H. Leather, "ALEA: A Fine-Grain Energy Profiling Tool," ***ACM Transactions on Architecture and Code Optimization***, vol. 14, no. 1, pp. 1–25, Nov. 2017. DOI: 10.1145/3050436.

[242] R. Montella, G. Giunta, G. Laccetti, M. Lapegna, C. Palmieri, C. Ferraro, V. Pelliccia, C.-H. Hong, I. Spence, and D. S. Nikolopoulos, "On the Virtualization of CUDA-based GPU Remoting on ARM and X86 Machines in the GVirtuS Framework," ***International Journal of Parallel Programming***, vol. 45, no. 5, pp. 1142–1163, 2017, DOI: 10.1007/s10766-016-0462-1.

[241] V. Vassiliadis, C. Chalios, K. Parasyris, C. D. Antonopoulos, S. Lalis, N. Bellas, H. Vandierendonck, and D. Nikolopoulos, "Exploiting Significance of Computations for Energy-Constrained Approximate Computing," ***International Journal of Parallel Programming***, vol. 44, no. 5, pp. 1078–1098, 2016.

[240] E. O'Neill, J. McGlone, P. Kilpatrick, and D. Nikolopoulos, "Managed Acceleration for In-Memory Database Analytic Workloads," ***International Journal of Parallel, Emergent, and Distributed Systems***, vol. 32, no. 4, pp. 406–427, May 2017. DOI: 10.1080/17445760.2016.1170832.

[239] G. Georgakoudis, C. J. Gillan, A. Sayed, I. Spence, R. Faloon, and D. S. Nikolopoulos, "Methods and Metrics for Fair Server Assessment under Real-Time Financial Workloads," ***Concurrency and Computation: Practice and Experience***, vol. 28, no. 3, pp. 916–928, Mar. 2016.

[238] C. Chalios, S. Catalán, E. S. Quintana-Orti, and D. S. Nikolopoulos, "Evaluating Asymmetric Multicore Systems-on-Chip and the Cost of Fault Tolerance using Iso-Metrics," ***IET Computers & Digital Techniques***, vol. 10, no. 2, pp. 85–92, Feb. 2016.

[237] H. Vandierendonck, A. Hassan, and D. Nikolopoulos, "On The Energy-Efficiency of Byte-Addressable Non-Volatile Memory," ***IEEE Computer Architecture Letters***, vol. 14, no. 2, pp. 144–147, Jul. 2015, DOI: 10.1109/LCA.2014.2355195.

[236] G. Georgakoudis, C. J. Gillan, A. Sayed, I. Spence, R. Faloon, and D. S. Nikolopoulos, "Iso-Quality of Service: Fairly Ranking Servers for Real-Time Data Analytics," ***Parallel Processing Letters***, vol. 25, no. 3, 2015.

[235] A. Khasymski and D. S. Nikolopoulos, "Scalable Black-Box Prediction Models for Multi-Dimensional Adaptation on NUMA Multi-Cores," ***International Journal of Parallel, Emergent, and Distributed Systems***, vol. 30, no. 3, pp. 193–210, Apr. 2015.

[234] D. Nikolopoulos, H. Vandierendonck, N. Bellas, C. Antonopoulos, S. Lalis, G. Karakonstantis, A. Burg, and U. Naumann, "Energy Efficiency through Significance-Based Computing," ***IEEE Computer***, vol. 47, pp. 82–85, 7 Jul. 2014.

[233] I. Manousakis, F. Zakkak, P. Pratikakis, and D. Nikolopoulos, "TProf: An Energy Profiler for Task-Parallel Programs," ***Sustainable Computing: Informatics and Systems***, vol. 5, pp. 1–13, Mar. 2015.

[232] P. Gschwandtner, C. Chalios, D. S. Nikolopoulos, H. Vandierendonck, and T. Fahringer, "On the Potential of Significance-Driven Execution for Energy-Aware HPC," ***Computer Science – Research and Development***, vol. 30, no. 2, pp. 197–206, Feb. 2015.

[231] C. Symeonidou, P. Pratikakis, D. S. Nikolopoulos, and A. Bilas, "Distributed Region-Based Memory Allocation and Synchronization," ***International Journal of High Performance Computing Applications***, vol. 28, no. 4, pp. 406–414, Nov. 2014.

[230] A. Papagiannis and D. Nikolopoulos, "Hybrid Address Spaces: A Methodology for Implementing Scalable High-Level Programming Models on Non-Coherent Many-core Architectures," ***Journal of Systems and Software***, vol. 97, pp. 47–64, Nov. 2014.

[229] S. Lyberis, G. Kalokerinos, M. Lygerakis, I. Mavroidis, V. Papaefstathiou, M. Katevenis, D. Pnevmatikatos, and D. S. Nikolopoulos, "FPGA Prototyping of Emerging Manycore Architectures for Parallel Programming Research using Formic Boards," ***Journal of Systems Architecture***, vol. 60, no. 6, pp. 481–493, Jun. 2014.

[228] H. Vandierendonck, G. Tzenakis, and D. Nikolopoulos, "Analysis of Dependence Tracking Algorithms for Task Dataflow Execution," ***ACM Transactions on Architecture and Code Optimization***, vol. 10, no. 4, pp. 1–24, Dec. 2013, Article No. 61.

[227] D. Li, B. D. Supinski, M. Schulz, D. Nikolopoulos, and K. Cameron, "Strategies for Energy Efficient Resource Management of Hybrid Programming Models," ***IEEE Transactions on Parallel and Distributed Systems***, vol. 24, no. 1, pp. 144–157, Jan. 2013.

[226] I. Manousakis and D. Nikolopoulos, "EPC: A Power Instrumentation Controller for Embedded Applications," ***ACM SIGBED Review***, vol. 9, no. 2, pp. 28–32, Jun. 2012.

[225] C.-Y. Su, D. Li, D. Nikolopoulos, M. Grove, K. Cameron, and B. D. Supinski, "Critical Path-Based Thread Placement for NUMA Systems," ***ACM SIGMETRICS Performance Evaluation Review***, vol. 40, no. 2, pp. 106–112, Sep. 2012.

[224] S. Kavadias, M. Katevenis, and D. Nikolopoulos, "Cache-Integrated Network Interfaces: Flexible On-chip Communication and Synchronization for Large-scale CMPs," ***International Journal of Parallel Programming***, vol. 40, no. 6, pp. 583–604, Dec. 2012.

[223] M. M. Rafique, A. Butt, and D. Nikolopoulos, "A Capabilities-Aware Framework for Using Computational Accelerators in Data-Intensive Computing," ***Journal of Parallel and Distributed Computing***, vol. 71, no. 2, pp. 185–197, Feb. 2011.

[222] R. Ferrer, P. Bellens, J. Yeom, S. Schneider, K. Koukos, M. Alvanos, V. Beltran, M. González, X. Martorell, R. Badia, D. Nikolopoulos, A. Bilas, and E. Ayguadé, "Parallel Programming Models for Heterogeneous Multi-Core Architectures," ***IEEE Micro***, vol. 30, no. 5, pp. 42–53, Oct. 2010.

[221] M. Katevenis, V. Papaefstathiou, S. Kavadias, D. Pnevmatikatos, F. Silla, and D. Nikolopoulos, "Explicit Communication and Synchronization in SARC," ***IEEE Micro***, vol. 30, no. 5, pp. 30–41, Oct. 2010.

[220] S. Schneider, J. Yeom, and D. Nikolopoulos, "Programming Multiprocessors with Explicitly Managed Memory Hierarchies," ***IEEE Computer***, vol. 42, no. 12, pp. 28–34, Dec. 2009.

[219] C. Antonopoulos, F. Blagojevic, A. Chernikov, N. Chrisochoides, and D. Nikolopoulos, "A Multi-grain Delaunay Mesh Generation Method for Multicore SMT-based Architectures," ***Journal of Parallel and Distributed Computing***, vol. 69, no. 7, pp. 589–600, Jul. 2009.

[218] C. Antonopoulos, F. Blagojevic, A. Chernikov, D. Nikolopoulos, and N. Chrisochoides, "Algorithm, Software, and Hardware Optimizations for Delaunay Mesh Generation on Simultaneous Multithreaded Architectures," ***Journal of Parallel and Distributed Computing***, vol. 69, no. 7, pp. 601–612, Jul. 2009.

[217] M. Rafique, B. Rose, A. Butt, and D. Nikolopoulos, "Supporting MapReduce on Asymmetric Multi-core Clusters," ***ACM SIGOPS Operating Systems Review***, vol. 43, no. 2, pp. 25–34, 2009.

[216] M. Curtis-Maury, F. Blagojevic, C. Antonopoulos, and D. Nikolopoulos, "Prediction-Based Power-Performance Adaptation of Multithreaded Scientific Codes," ***IEEE Transactions on Parallel and Distributed Systems***, vol. 19, no. 10, pp. 1396–1410, Oct. 2008.

[215] F. Blagojevic, D. Nikolopoulos, A. Stamatakis, C. Antonopoulos, and M. Curtis-Maury, "Runtime Scheduling of Dynamic Parallelism on Accelerator-Based Multi-core Systems," ***Parallel Computing***, vol. 33, no. 10–11, pp. 700–719, Nov. 2007.

[214] A. Stamatakis, F. Blagojevic, D. Nikolopoulos, and C. Antonopoulos, "Exploring new Search Algorithms and Hardware for Phylogenetics: RAxML meets the IBM Cell," ***Journal of VLSI Signal Processing***, vol. 48, no. 3, pp. 271–286, Aug. 2007.

[213] R. Mills, C. Yue, A. Stathopoulos, and D. Nikolopoulos, "Runtime and Programming Support for Memory Adaptation in Scientific Applications via Local Disk and Remote Memory," ***Journal of Grid Computing***, vol. 5, no. 2, pp. 213–234, Jun. 2007.

[212] D. Nikolopoulos, "Dynamic Tiling for Effective Use of Shared Caches on Multithreaded Processors," ***International Journal of High Performance Computing and Networking***, vol. 2, no. 1, pp. 22–35, 2004.

[211] ——, "Quantifying Contention and Balancing Memory Load on Hardware DSM Multiprocessors," ***Journal of Parallel and Distributed Computing***, vol. 63, no. 9, pp. 866–886, Sep. 2003.

[210] D. Nikolopoulos and C. Polychronopoulos, "Adaptive Scheduling under Memory Constraints on Non-Dedicated Computational Farms," ***Future Generation Computer Systems***, vol. 19, no. 4, pp. 505–519, May 2003.

[209] D. Nikolopoulos, E. Artiaga, E. Ayguadé, and J. Labarta, "Scaling Non-Regular Shared-Memory Codes by Reusing Custom Loop Schedules," ***Scientific Programming***, vol. 11, no. 2, pp. 143–158, Apr. 2003.

[208] D. Nikolopoulos, E. Ayguadé, and C. Polychronopoulos, "Runtime vs. Manual Data Distribution for Architecture-Agnostic Shared-Memory Programming Models," ***International Journal of Parallel Programming***, vol. 30, no. 4, pp. 225–254, Aug. 2002.

[207] D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, and E. Ayguadé, "Scheduler-Activated Dynamic Page Migration for Multiprogrammed DSM Multiprocessors," ***Journal of Parallel and Distributed Computing***, vol. 62, no. 6, pp. 1069–1103, Jun. 2002.

[206] D. Nikolopoulos, E. Artiaga, E. Ayguadé, and J. Labarta, "Exploiting Memory Affinity in OpenMP through Schedule Reuse," ***ACM Computer Architecture News***, vol. 29, no. 5, pp. 49–55, Dec. 2001.

[205] D. Nikolopoulos and T. Papatheodorou, "The Architectural and Operating System Implications on the Performance of Synchronization on ccNUMA Multiprocessors," ***International Journal of Parallel Programming***, vol. 29, no. 3, pp. 249–282, Jun. 2001.

[204] D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, and E. Ayguadé, "A Transparent Runtime Data Distribution Engine for OpenMP," ***Scientific Programming***, vol. 8, no. 3, pp. 143–162, Dec. 2000.

Papers in Archival Conference Proceedings

[201] K. H. I. Arif, J. Yoon, D. Nikolopoulos, H. Vandierendonck, D. John, and B. Ji, "HiRED: Attention-Guided Token Dropping for Efficient Inference of High-Resolution Vision-Language Models in Resource-Constrained Environments," in *Proceedings of the 39th Annual AAAI Conference on Artificial Intelligence* ***(AAAI'25)***, vol. 39, Philadelphia, PA, Feb. 2025, pp. 1773–1781.

[200] M. Lee, S. Seong, M. Kang, J. Lee, G.-J. Na, I.-G. Chun, D. Nikolopoulos, and C.-H. Hong, "Parvagpu: Efficient spatial gpu sharing for large-scale dnn inference in cloud environments," in *Proceedings of Supercomputing: The International Conference for High-Performance Computing, Networking, Storage, and Analysis* ***(SC)***, Article No.: 42, Nov. 2024, pp. 1–14. DOI: https://doi.org/10.1109/SC41406.2024.00048.

[199] Y. Li, S. Yao, J. Mobin, M. M. Rafique, D. Nikolopoulos, K. Sundararajah, H. Li, and A. R. Butt, "Towards an efficient python interpreter for tiered memory systems," in *Proccedings of the 22nd USENIX Conference on File and Storage Systems* ***(FAST)***, WIP Session, Santa Clara, CA, Feb. 2024.

[198] M. Arif, A. Maurya, M. Rafique, D. Nikolopoulos, and A. Butt, "Application-attuned memory management for containerized hpc workflows," in *Proceedings of the 38th IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, San Francisco, CA, May 2024.

[197] M. Cameron, M. Ellis, and D. Nikolopoulos, "Parallel islands: A parallel computing educational video game," in *Proceedings of the SIGCSE Technical Symposium* ***SIGCSETS***, Mar. 2024.

[196] X. Li, H. Vandierendonck, D. Nikolopoulos, B. Ji, B. Cardiff, and D. John, "Decentralized biomedical signal classification using early exits," in *Proceedings of the 21st IEEE Interregional NEWCAS Conference* ***NEWCAS***, Jun. 2023, pp. 1–2.

[195] K. Assogba, M. Arif, M. M. Rafique, and D. Nikolopoulos, "On realizing efficient deep learning using serverless computing," in *Proceedings of the 22nd IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing* ***(CCGRID)***, May 2022.

[194] S. Barbhuiya, P. Kilpatrick, and D. Nikolopoulos, "Linear regression based ddos attack detection," in *Proceedings of the 13th International Conference on Machine Learning and Computing* ***(ICMLC)***, Jan. 2021, pp. 568–574.

[193] E. Chawla, R. Jian, F. Shiely, K. Waki, D. Nikolopoulos, P. Henn, P. Fadahunsi, B. Hayhoe, A. Majeed, K. Balanda, J. Gallagher, S. Oakes, and J. O'Donoghue, "Combining leadership and patient empowerment through intelligent data access and remote consultations (clear): A systematic review," in *New Horizons Research Conference*, Accepted, Cork, Ireland, Nov. 2020.

[192] L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Dstress: Automatic synthesis of dram reliability stress viruses using genetic algorithms," in *Proceedings of the 53rd IEEE/ACM International Symposium on Microarchitecture* ***(MICRO)***, **Best Paper Award Nomination**, Oct. 2020, pp. 298–312.

[191] J. Liu, Z. Xie, D. Nikolopoulos, and D. Li, "Riann: Real-time incremental learning with approximate nearest neighbor on mobile devices," in *Proceedings of the 2020 USENIX Conference on Operational Machine Learning* ***(OpML)***, Santa Clara, CA, Jul. 2020.

[190] K. Chen, P. Kilpatrick, D. Nikolopoulos, and B. Varghese, "Cross architectural power modeling," in *Proceedings of the 20th IEEE/ACM International Symposium on Cluster, Grid and Internet Computing* ***(CCGRID)***, Melbourne, Australia, May 2020, pp. 390–399.

[189] A. Abubakar, S. Barbhuiya, D. Nikolopoulos, V. Ngo, and P. Kilpatrick, "Fast analysis and prediction in large scale virtual machines resource utilization," in *Proceedings of the 10th International Conference on Cloud Computing and Services Science* ***(CLOSER)***, Prague, Czech Republic, May 2020, pp. 115–126.

[188] K. Tovletoglou, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Harmony: Heterogeneous-reliability memory and qos-aware energy management on virtualized servers," in *Proceedings of the 2020 ACM International Conference on Architectural Support for Programming Languages and Operating Systems* ***(ASPLOS)***, Lausanne, Switzerland, Mar. 2020, pp. 575–590.

[187] I. Tsiokanos, L. Mukhanov, G. Georgakoudis, D. Nikolopoulos, and G. Karakonstantis, "DEFCON: Generating and Detecting Failure-Prone Instruction Sequences via Stochastic Search," in *Proceedings of the 2020 Design Automation and Test in Europe Conference* ***(DATE)***, **Best Paper Award**, Grenoble, France, Mar. 2020, pp. 1121–1126.

[186] S. Barbhuiya, P. Kilpatrick, and D. Nikolopoulos, "DroidLight: Lightweight Anomaly-Based Intrusion Detection System for Smartphone Devices," in *Proceedings of the 21st International Conference on Distributed Computing and Networking* ***(ICDCN)***, Kolkata, India, Jan. 2020, 31:1–31:10.

[185] L. Mukhanov, K. Tovletoglou, H. Vandierendonck, D. Nikolopoulos, and G. Karakonstantis, "Comprehensive Workload-Aware DRAM Error Prediction using Machine Learning," in *Proceedings of the 2019 IEEE International Symposium on Workload Characterization* ***(IISWC)***, Orlando, FL, Nov. 2019, pp. 106–118.

[184] K. Dichev and D. Nikolopoulos, "Implementing Efficient Message Logging Protocols as MPI Application Extensions," in *Proceedings of the 26th International Conference on Recent Advances in Message Passing Interface* ***EuroMPI***, Article 8, Zurich, Switzerland, Sep. 2019, pp. 1–11.

[183] S. Kyle, D. Nolan, M. Price, W. Zhang, T. Robinson, D. Nikolopoulos, and S. Barbhuiya, "Bio-inspired growth: Introducing emergence into computational design," in *Advances in Manufacturing Technology XXXII*, 2019, pp. 379–385.

[182] W. Zhang, M. Price, T. Robinson, D. Nolan, D. Nikolopoulos, S. Barbhuiya, and S. Kyle, "Design Gene Representations for Emergent Innovative Design," in *Advances in Manufacturing Technology XXXII*, **Best Paper Award Runner Up**, Sep. 2019, pp. 386–392.

[181] S. Barbhuiya, D. Nikolopoulos, M. Price, T. Robinson, D. Nolan, W. Zhang, and S. Kyle, "SmartMaaS: A Framework for Smart Manufacturing-as-a-Service," in *Advances in Manufacturing Technology XXXII*, **Best Paper Award**, Sep. 2019, pp. 16–21.

[180] G. Georgakoudis, I. Laguna, H. Vandierendonck, D. Nikolopoulos, and M. Schulz, "SAFIRE: Scalable and Accurate Fault Injection For Parallel Multithreaded Applications," in *Proceedings of the 33rd IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Rio de Janeiro, Brazil, May 2019, pp. 890–899.

[179] J. Sun, H. Vandierendonck, and D. Nikolopoulos, "VEBO: A Vertex- and Edge-Balanced Ordering Heuristic to Load Balance Parallel Graph Processing," in *Proceedings of the 2019 ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* ***(PPoPP)***, Washington, DC, USA, Feb. 2019, pp. 391–392.

[178] R. Istrate, F. Sheidegger, G. Mariani, D. Nikolopoulos, C. Bekas, and C. Malossi, "TAPAS: Train-Less Accuracy Predictor for Architecture Search," in *Proceedings of the 33rd AAAI International Conference on Artificial Intelligence* ***(AAAI)***, Honolulu, Hawaii, Jan. 2019, pp. 3927–3934.

[177] D. Fenacci, H. Vandierendonck, and D. Nikolopoulos, "Code and Data Transformations to Address Garbage Collector Performance in Big Data Processing," in *Proceedings of the 25th IEEE International Conference on High-Performance Computing, Data, and Analytics* ***(HiPC)***, Bangaluru, India, Dec. 2018.

[176] B. Wang, H. Vandierendonck, G. Karakonstantis, and D. Nikolopoulos, "Userspace Hypervisor Data Characterization in Virtualized Environment," in *Proceedings of the 24th IEEE International Conference on Parallel and Distributed Systems* ***(ICPADS)***, Singapore, Dec. 2018, pp. 638–645.

[175] K. Dichev, K. Cameron, and D. Nikolopoulos, "Energy-Efficient Localized Rollback after Failures via Data Flow Analysis," in *Proceedings of the 25th International Conference on Recent Advances in Message Passing Interface* ***(EuroMPI)***, Barcelona, Spain, Sep. 2018.

[174] E. Barlaskar, K. Dichev, I. Spence, P. Kilpatrick, and D. Nikolopoulos, "Supporting Cloud IaaS Users in Detecting Performance-based Violation for Streaming Applications," in *Proceedings of the 15th IEEE International Conference on Autonomic Computing (****ICAC****)*, Trento, Italy, Sep. 2018.

[173] I. Tsiokanos, L. Mukhanov, D. Nikolopoulos, and G. Karakonstantis, "Variation-Aware Pipelined Cores through Path Shaping and Dynamic Cycle Adjustment: Case Study on a Floating-Point Unit," in *Proceedings of the 2018 IEEE/ACM International Symposium on Low Power Electronics and Design* ***(ISLPED)***, Washington, DC, USA, Jul. 2018, 52:1–52:6.

[172] ——, "Minimization of Timing Failures in Pipelined Designs via Path Shaping and Operand Truncation," in *Proceedings of the 24th IEEE International Symposium on On-Line Testing and Robust System Design **(IOLTS)***, Costa Brava, Spain, Jul. 2018.

[171] L. Mukhanov, K. Tovletoglou, D. Nikolopoulos, and G. Karakonstantis, "DRAM Characterization under Relaxed Refresh Period Considering System Level Effects within a Commodity Server," in *Proceedings of the 24th IEEE International Symposium on On-Line Testing and Robust System Design **(IOLTS)***, Costa Brava, Spain, Jul. 2018.

[170] ——, "Characterization of hpc workloads on an armv8 based server under relaxed dram refreshed and thermal stress," in *Proceedings of the 18th International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation **SAMOS***, Jul. 2018, pp. 230–235.

[169] C. Kachris, D. Soudris, S. Mavridis, M. Pavlidakis, C. Symeonidou, C. Kozanitis, A. Bilas, D. Fenacci, S. V. Bogaraju, H. Vandierendonck, and D. S. Nikolopoulos, "The VINEYARD Integrated Framework for Hardware Accelerators in the Cloud," in *Proceedings of the 18th International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation, Pythagorion, Greece, July 15-19, 2018.*, 2018, pp. 236–243.

[168] G. Karakonstantis, K. Tovletoglou, L. Mukhanov, *et al.*, "An Energy-Efficient and Error-Resilient Server Ecosystem Exceeding Conservative Scaling Limits," in *Proceedings of the 2018 Design Automation and Test in Europe Conference **(DATE)***, Dresden, Germany, Mar. 2018, pp. 1099–1104.

[167] C. Malossi, M. Schaffner, A. Molnos, L. Gamaitoni, G. Tagliavini, A. Emerson, A. Tomás, D. Nikolopoulos, E. Flamand, and N. Wehn, "The Transprecision Computing Paradigm: Concept, Design and Applications," in *Proceedings of the 2018 Design Automation and Test in Europe Conference **(DATE)***, Dresden, Germany, Mar. 2018, pp. 1105–1110.

[166] E. Barlaskar, P. Kilpatrick, I. Spence, and D. Nikolopoulos, "Using Docker Swarm with a User-Centric Decision-Making Framework for Cloud Application Migration," in *Proceedings of the 2017 International Conference on Cloud Computing and Services Sciences **(CLOSER)** Lecture Notes in Computer Science, Communications in Computer and Information Science*, vol. 864, 2018, pp. 186–195.

[165] P. Thoman, K. Hasanov, K. Dichev, R. Iakymchuk, X. Aguilar, P. Gschwandtner, E. Laure, H. Jordan, P. Lemarinier, K. Katrinis, D. Nikolopoulos, and T. Fahringer, "A Taxonomy of Task-Based Technologies for High-Performance Computing," in *Proceedings of the 12th International Conference on Parallel Processing and Applied Mathematics **(PPAM)***, Lublin, Poland, Sep. 2017.

[164] C. Antonopoulos, S. Lallis, N. Bellas, G. Karakonstantis, D. Nikolopoulos, D. Gizopoulos, and P. Lawthers, "Energy Efficiency in ARMv8-based Microservers by Hardware Margins Identification," in *Proceedings of the 2017 **ARM Research Summit***, Cambridge, UK, Sep. 2017.

[163] ——, "Reliability-Aware System Software Support on ARM Microservers," in *Proceedings of the **2017 ARM Research Summit***, Cambridge, UK, Sep. 2017.

[162] G. Georgakoudis, I. Laguna, D. Nikolopoulos, and M. Schulz, "REFINE: Realistic Fault Injection via Compiler-Based Instrumentation for Accuracy, Portability, and Speed," in *Proceedings of Supercomputing: International Conference on High-Performance Computing, Networking, Storage and Analysis (**SC**)*, Denver, CO, USA, Nov. 2017, 29:1–29:14.

[161] J. Sun, H. Vandierendonck, and D. Nikolopoulos, "Accelerating Graph Analytics by Utilizing the Memory Locality of Graph Partitioning," in *Proceedings of the 46th International Conference on Parallel Processing* ***(ICPP)***, Bristol, UK, Aug. 2017, pp. 181–190.

[160] K. Tovletoglou, D. Nikolopoulos, and G. Karakonstantis, "Access-Aware DRAM Failure-Rate Estimation under Relaxed Refresh Operations," in *Proceedings of the 2017 International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation* ***(SAMOS)***, Samos, Greece, Jul. 2017.

[159] K. Tovletoglou, D. Nikolopoulos, and G. Karakonstantis, "Relaxing DRAM Refresh Rate through Access Pattern Scheduling: A Case Study on Stencil-based Algorithms," in *Proceedings of the 23rd IEEE International Symposium on On-Line Testing and Robust System Design* ***(IOLTS)***, Thessaloniki, Greece, Jul. 2017, pp. 45–50.

[158] J. Sun, H. Vandierendonck, and D. Nikolopoulos, "GraphGrind: Addressing Load Imbalance of Graph Partitioning," in *Proceedings of the ACM International Conference on Supercomputing* ***(ICS)***, Chicago, IL, USA, Jun. 2017, pp. 16.1–16.10.

[157] E. Barlaskar, P. Kilpatrick, I. Spence, and D. Nikolopoulos, "MyMinder: A User-Centric Decision Making Framework for Inter-Cloud Migration," in *Proceedings of the 7th International Conference on Cloud Computing and Services Science* ***(CLOSER)***, Porto, Portugal, Apr. 2017, pp. 560–567.

[156] H. Vandierendonck, K. Murphy, M. Arif, and D. Nikolopoulos, "HPTA: High-Performance Text Analytics," in *Proceedings of the 2016 IEEE International Conference on Big Data (****IEEE BigData 2016****)*, Washington, DC, Dec. 2016, pp. 416–423.

[155] B. Varghese, N. Wang, S. Barbhuiya, P. Kilpatrick, and D. Nikolopoulos, "Challenges and Opportunities in Edge Computing," in *Proceedings of the 2016 IEEE International Conference on Smart Cloud* ***(IEEE SmartCloud)***, Nov. 2016, pp. 20–26. DOI: 10.1109/SmartCloud.2016.18.

[154] G. Georgakoudis, C. Gillan, A. Hassan, U. Minhas, G. Tzenakis, I. Spence, H. Vandierendonck, R. Woods, D. Nikolopoulos, M. Shyamsundar, P. Barber, M. Russell, A. Bilas, S. Kaloutsakis, H. Giefers, P. Staar, C. Bekas, N. Horlock, R. Faloon, and C. Pattison, "NanoStreams: Codesigned Microservers for Edge Analytics in Real Time," in *Proceedings of the 16th International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation* ***(SAMOS-XVI)***, Samos, Greece, Jul. 2016, pp. 180–187.

[153] Y. Wu, D. Nikolopoulos, and R. Woods, "Runtime Support for Adaptive Power Capping on Heterogeneous SoCs," in *Proceedings of the 16th International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation* ***(SAMOS-XVI)***, Samos, Greece, Jul. 2016, pp. 71–78.

[152] C. Trehan, G. Karakonstantis, D. Nikolopoulos, and H. Vandierendonck, "Energy Optimization of Memory Intensive Parallel Workloads," in *Proceedings of the 28th ACM Symposium on Parallelism in Algorithms and Architectures* ***(SPAA)***, Asilomar State Beach, CA, Jun. 2016, pp. 251–252.

[151] C. Kachris, D. Soudris, G. Gaydadjiev, H.-N. Nguyen, D. S. Nikolopoulos, A. Bilas, N. Morgan, C. Strydis, C. Tsalidis, J. Balafas, R. Jiménez-Peris, and A. Almeida, "The VINEYARD Project: Versatile, Integrated, Accelerator-Based, Heterogeneous Data Centres," in *Proceedings of the Fifth International Conference on Modern Circuits and Systems Technologies* ***(MOCAST)***, Thessaloniki, Greece, May 2016, pp. 1–4.

[150] ——, "The VINEYARD Approach: Versatile, Integrated, Accelerator-Based, Heterogeneous Data Centres," in *Proceedings of the 12th International Symposium on Applied Reconfigurable Computing **(ARC)***, ser. Lecture Notes in Computer Science, vol. 9625, Mangaratiba, Brazil, Mar. 2016, pp. 3–13.

[149] M. Marcu, O. Boncalo, M. Ghenea, A. Amaricai, J. Weinstock, R. Leupers, Z. Wang, G. Georgakoudis, D. S. Nikolopoulos, L. B. Cosmin Cernazanu-Glavanand, and M. Ionascu, "Low-Cost Hardware Infrastructure for Runtime Thread Level Energy Accounting," in *Proceedings of the 2016 International Conference on Architecture of Computing Systems **(ARCS)***, ser. Lecture Notes in Computer Science, vol. 9637, Mar. 2016, pp. 277–289.

[148] I. Mavroidis, I. Papaefstathiou, L. Lavagno, D. S. Nikolopoulos, D. Koch, J. Goodacre, I. Sourdis, V. Papaefstathiou, M. Coppola, and M. Palormino, "ECOSCALE: Reconfigurable Computing and Runtime System for Future Exascale Systems," in *Proceedings of the 2016 International Conference on Design, Automation, and Test in Europe **(DATE)***, Dresden, Germany, Mar. 2016, pp. 696–671.

[147] P. Petoumenos, L. Mukhanov, Z. Wang, H. Leather, and D. Nikolopoulos, "Power Capping: What Works, What Does Not," in *Proceedings of the 21st IEEE International Conference on Parallel and Distributed Systems **(ICPADS)***, Melbourne, Australia, Dec. 2015, pp. 525–534.

[146] L. Mukhanov, D. S. Nikolopoulos, and B. R. de Supinski, "ALEA: Fine-Grain Energy Profiling with Basic Block Sampling," in *Proceedings of the 24th International Conference on Parallel Architectures and Compilation Techniques **(PACT)***, San Francisco, CA, Oct. 2015, pp. 87–98.

[145] A. Hassan, H. Vandierendonck, and D. S. Nikolopoulos, "Energy-Efficient Hybrid DRAM/NVM Main Memory," in *Proceedings of the 24th International Conference on Parallel Architectures and Compilation Techniques **(PACT)***, ACM Student Research Competition (SRC), San Francisco, CA, Oct. 2015, pp. 492–493.

[144] C.-Y. Su, D. Roberts, E. A. León, K. W. Cameron, B. R. de Supinski, G. Loh, and D. S. Nikolopoulos, "HpMC: An Energy-Aware Management System for Multi-Level Memory Architectures," in *Proceedings of the First International Symposium on Memory Systems **(MEMSYS)***, Washington, DC, Oct. 2015, pp. 167–178.

[143] S. Svorobej, J. Byrne, P. Liston, P. Byrne, C. Stier, H. Groenda, Z. Papazachos, and D. S. Nikolopoulos, "Towards Automated Data-Driven Cloud Computing Simulation Model Creation," in *Proceedings of the Eighth International Conference on Simulation Tools and Techniques **(SIMUTOOLS)***, DOI: 10.4108/eai.24-8-2015.2261129, Athens, Greece, Aug. 2015, pp. 248–255.

[142] S. Barbhuiya, D. Nikolopoulos, P. Kilpatrick, and Z. Papazachos, "A Lightweight Tool for Anomaly Detection in Cloud Data Centres," in *Proceedings of the Fifth International Conference on Cloud Computing and Services Science **(CLOSER)***, DOI: 10.5220/0005453403430351, **Best Paper Award Nominee**, Lisbon, Portugal, May 2015, pp. 343–351.

[141] V. Vassiliadis, C. Chalios, K. Parasyris, C. Antonopoulos, S. Lalis, N. Bellas, H. Vandierendonck, and D. S. Nikolopoulos, "A Significance-Driven Programming Framework for Energy-Constrained Approximate Computing," in *Proceedings of the ACM International Conference on Computing Frontiers **(CF)***, Article 9, DOI: 10.1145/2742854.2742857, Ischia, Italy, May 2015.

[140] A. Hassan, H. Vandierendonck, and D. S. Nikolopoulos, "Software-Managed Energy-Efficient Hybrid DRAM/NVM Main Memory," in *Proceedings of the ACM International Conference on Computing Frontiers **(CF)***, Article 23, DOI: 10.1145/2742854.2742886, Ischia, Italy, May 2015.

[139] O. G. Lorenzo, T. F. Pena, J. C. Cabaleiro, J. C. Pichel, F. F. Rivera, and D. S. Nikolopoulos, "Power and Energy Implications of the Number of Threads Used on the Intel Xeon Phi," in *Proceedings of the Second Congress on Multicore and GPU Programming* ***(PPMG)***, ISBN: 978-84-606-6036-1, Caceres, Spain, Mar. 2015, pp. 1–8.

[138] V. Vassiliadis, K. Parasyris, C. Chalios, C. D. Antonopoulos, S. Lalis, N. Bellas, H. Vandierendonck, and D. S. Nikolopoulos, "A Programming Model and Runtime System for Significance-Aware Energy-Efficient Computing," in *Proceedings of the 20th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* ***(PPoPP)***, San Francisco, CA, USA, Feb. 2015, pp. 275–276, Extended version *CoRR* **abs/1412.5150**, presented in *First HiPEAC Workshop on Approximate Computing* ***(WAPCO)***, Amsterdam, The Netherlands, January 2015.

[137] P.-O. Östberg, H. Groenda, S. Wesner, *et al.*, "The CACTOS Vision of Context-Aware Cloud Topology Optimization and Simulation," in *Proceedings of the Sixth IEEE International Conference on Cloud Computing Technology and Science* ***(CloudCom)***, Singapore, Dec. 2014, pp. 26–31.

[136] Y. Wu, J. Nunez-Yanez, R. Woods, and D. Nikolopoulos, "Power Modeling and Capping for Heterogeneous ARM/FPGA SoCs," in *Proceedings of the 2014 International Conference on Field-Programmable Technology* ***(FPT)***, Shanghai, China, Dec. 2014, pp. 231–234.

[135] S. Imamura, K. Inoue, H. Sasaki, and D. Nikolopoulos, "Power-Capped DVFS and Thread Allocation with ANN Models on Modern NUMA Systems," in *Proceedings of the 32nd IEEE International Conference on Computer Design* ***(ICCD)***, Seoul, Korea, Oct. 2014, pp. 324–331.

[134] C. Gillan, D. Nikolopoulos, I. Spence, A. Bilas, and C. Bekas, "Advancing the Hardware and Software Stack for Real-Time Analytics on Fast Data Streams," in *Proceedings of the IEEE 2014* ***eChallenges e-2014*** *Conference*, Belfast, UK, Oct. 2014, pp. 1–8.

[133] G. Georgakoudis, D. Nikolopoulos, H. Vandierendonck, and S. Lalis, "Fast Dynamic Binary Rewriting for Flexible Thread Migration on Shared-ISA Heterogeneous MPSoCs," in *Proceedings of the International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation* ***(IC-SAMOS)***, Jul. 2014, pp. 156–163.

[132] J.-s. Yeom, A. Batele, K. Bisset, E. Bohm, A. Gupta, L. Kale, M. Marathe, D. Nikolopoulos, M. Schulz, and L. Wesolowski, "Overcoming the Scalability Challenges of Epidemic Simulations on Blue Waters," in *Proceedings of the 28th IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Phoenix, AZ, USA, May 2014, pp. 755–764.

[131] H. Vandierendonck, K. Chronaki, and D. Nikolopoulos, "Deterministic Scale-Free Pipeline Parallelism with Hyperqueues," in *Proceedings of Supercomputing: International Conference for High Performance Computing, Networking, Storage and Analysis* ***(SC)***, Article No. 32, Denver, CO, USA: ACM, Nov. 2013. DOI: 10.1145/2503210.2503233.

[130] F. Zakkak, D. Chasapis, P. Pratikakis, A. Bilas, and D. Nikolopoulos, "Inference and Declaration of Independence in Task-Parallel Programs," in *Proceedings of the 10th International Conference on Advanced Parallel Processing Technology* ***(APPT)***, ser. Lecture Notes in Computer Science, vol. 8299, Stockholm, Sweden, Sep. 2013, pp. 1–16.

[129] G. Tzenakis, A. Papatriantafyllou, H. Vandierendonck, P. Pratikakis, and D. Nikolopoulos, "BDDT: Block-Level Dynamic Dependence Analysis for Deterministic Task-Based Parallelism," in *Proceedings of the 10th International Conference on Advanced Parallel Processing Technology* ***(APPT)***, ser. Lecture Notes in Computer Science, vol. 8299, Stockholm, Sweden, Sep. 2013, pp. 17–31.

[128] C. Symeonidou, P. Pratikakis, D. Nikolopoulos, and A. Bilas, "DRASync: Distributed Region-Based Memory Allocation and Synchronization," in *Proceedings of the 20th International Conference on Recent Advances in Message Passing Interface* ***(EuroMPI)***, Madrid, Spain, Sep. 2013, pp. 49–54.

[127] V. Papaefstathiou, M. Katevenis, D. Nikolopoulos, and D. Pnevmatikatos, "Prefetching and Cache Management using Task Lifetimes," in *Proceedings of the 27th ACM International Conference on Supercomputing* ***(ICS)***, Eugene, OR, USA, Jun. 2013, pp. 325–334.

[126] C.-Y. Su, D. Li, D. Nikolopoulos, K. Cameron, B. de Supinski, and E. Leon, "Model-Based, Memory-Centric Performance and Power Optimization on NUMA Multiprocessors," in *Proceedings of the 2012 IEEE International Symposium on Workload Characterization* ***(IISWC)***, San Diego, CA, Nov. 2012, pp. 164–173.

[125] I. Manousakis and D. Nikolopoulos, "BTL: A Framework for Measuring and Modeling Energy in Memory Hierarchies," in *Proceedings of the 24th International Symposium on Computer Architectures and High Performance Computing* ***(SBAC-PAD)***, New York City, NY, Oct. 2012, pp. 139–146.

[124] F. Zakkak, D. Chasapis, P. Pratikakis, D. Nikolopoulos, and A. Bilas, "Inference and Declaration of Independence: Impact on Deterministic Task Parallelism," in *Proceedings of the 21st International Conference on Parallel Architectures and Compilation Techniques* ***(PACT)***, Minneapolis, MN, USA, Sep. 2012, pp. 453–454.

[123] A. Khasymski, M. M. Rafique, A. Butt, S. Vazhkudai, and D. Nikolopoulos, "On the Use of GPUs in Realizing Cost-Effective Distributed RAID," in *Proceedings of the 20th IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems* ***(MASCOTS)***, Washington, DC, USA, Aug. 2012, pp. 469–478.

[122] S. Lyberis, P. Pratikakis, D. Nikolopoulos, M. Schulz, T. Gamblin, and B. R. de Supinski, "The Myrmics Memory Allocator: Hierarchical Message-Passing Allocation for Global Address Spaces," in *Proceedings of the 2012 ACM SIGPLAN International Symposium on Memory Management* ***(ISMM)***, Beijing, China, Jun. 2012, pp. 15–24.

[121] G. Georgakoudis, S. Lalis, and D. Nikolopoulos, "Dynamic Binary Rewriting and Migration for Shared-ISA Asymmetric, Multicore Processors," in *Proceedings of the 21st International ACM Symposium on High Performance Parallel and Distributed Computing* ***(HPDC)***, Delft, The Netherlands, Jun. 2012, pp. 127–128.

[120] S. Lyberis, G. Kalokerinos, M. Lygerakis, V. Papaefstathiou, D. Tsaliagkos, M. Katevenis, D. Pnevmatikatos, and D. Nikolopoulos, "Formic: Cost-Efficient and Scalable Prototyping of Manycore Architectures," in *Proceedings of the 20th Annual International IEEE Symposium on Field-Programmable Custom Computing Machines* ***(FCCM)***, Toronto, Ontario, Canada, Apr. 2012, pp. 61–64.

[119] G. Tzenakis, A. Papatriantafyllou, J. Kesapides, P. Pratikakis, H. Vandierendonck, and D. Nikolopoulos, "Block-level Dynamic Dependence Analysis for Deterministic Task-Based Parallelism," in *Proceedings of the 17th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* ***(PPOPP)***, New Orleans, LA, USA, Feb. 2012, pp. 301–302.

[118] H. Vandierendonck, G. Tzenakis, and D. Nikolopoulos, "A Unified Scheduler for Recursive and Task-Based Parallelism," in *Proceedings of the 20th International Conference on Parallel Architectures and Compilation Techniques,* ***(PACT)***, Galveston, TX, USA, Oct. 2011, pp. 1–11.

[117] A. Papagiannis and D. Nikolopoulos, "Scalable Runtime Support for Data-Intensive Applications on the Single-Chip Cloud Computer," in *Proceedings of the 3rd Intel Many-core Applications Research Community Symposium* ***(MARC)***, Ettlingen, Germany, Jul. 2011, pp. 25–30.

[116] M. Alvanos, G. Tzenakis, A. Bilas, and D. Nikolopoulos, "Design and Evaluation of a Task-based Parallel H.264 Video Encoder for Heterogeneous Processors," in *Proceedings of SAMOS XI: International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation* ***(IC-SAMOS)***, Samos, Greece, Jul. 2011, pp. 217–224.

[115] D. Li, D. Nikolopoulos, K. Cameron, B. D. Supinski, and M. Schulz, "Scalable Memory Registration for High-Performance Networks Using Helper Threads," in *Proceedings of the 8th ACM International Conference on Computing Frontiers* ***(CF)***, Article No. 38, DOI: 10.1145/2016604.2016652, Ischia, Italy: ACM, May 2011.

[114] P. Tendulkar, V. Papaefstathiou, G. Nikiforos, S. Kavadias, D. Nikolopoulos, and M. Katevenis, "Fine-Grain OpenMP Runtime Support with Explicit Communication Hardware Primitives," in *Proceedings of the 2011 International Conference on Design, Automation & Test in Europe* ***(DATE)***, Grenoble, France, Mar. 2011, pp. 891–894.

[113] J. Yeom and D. Nikolopoulos, "Strider: Runtime Support for Optimizing Strided Data Accesses on Multi-cores with Explicitly Managed Memories," in *Proceedings of ACM/IEEE Supercomputing'2010: International Conference on High Performance Computing, Networking, Storage, and Analysis* ***(SC)***, New Orleans, LA, USA: IEEE, Nov. 2010, pp. 1–11. DOI: 10.1109/SC.2010.52.

[112] A. Papagiannis and D. Nikolopoulos, "Rearchitecting MapReduce for Heterogeneous Multicore Processors with Explicitly Managed Memories," in *Proceedings of the 39th International Conference on Parallel Processing* ***(ICPP)***, San Diego, CA, USA, Sep. 2010, pp. 121–130.

[111] K. Singh, M. Curtis-Maury, S. McKee, F. Blagojevic, D. Nikolopoulos, B. D. Supinski, and M. Schulz, "Comparing Scalability Prediction Strategies on an SMP of CMPs," in *Proceedings of the 16th International European Conference on Parallel and Distributed Computing* ***(EUROPAR)***, ser. Lecture Notes in Computer Science, vol. 6271, Ischia, Italy, Aug. 2010, pp. 143–155.

[110] S. Schneider, H. Andrade, B. Gedik, K.-L. Wu, and D. Nikolopoulos, "Evaluation of Streaming Aggregation on Parallel Hardware Architectures," in *Proceedings of the Fourth ACM International Conference on Distributed Event-Based Systems* ***(DEBS)***, Cambridge, United Kingdom, Jul. 2010, pp. 248–257.

[109] S. Kavadias, Manolis G. H. Katevenis, M. Zampetakis, and D. Nikolopoulos, "On-chip Communication and Synchronization Mechanisms with Cache-Integrated Network Interfaces," in *Proceedings of the Seventh ACM International Conference on Computing Frontiers* ***(CF)***, Bertinoro, Italy, May 2010, pp. 217–226.

[108] M. M. Rafique, A. Butt, and D. Nikolopoulos, "Designing Accelerator-Based Distributed Systems for High Performance," in *Proceedings of the 10th IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing* ***(CCGRID)***, Melbourne, Australia, May 2010, pp. 165–174.

[107] D. Li, D. Nikolopoulos, K. Cameron, B. D. Supinski, and M. Schulz, "Power-aware MPI Task Aggregation Prediction for High-End Computing Systems," in *Proceedings of the 24th IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Atlanta, GA, USA: IEEE, Apr. 2010, pp. 1–12. DOI: 10.1109/IPDPS.2010.5470464.

[106] D. Li, B. D. Supinski, M. Schulz, K. Cameron, and D. Nikolopoulos, "Hybrid MPI/OpenMP Power-Aware Computing," in *Proceedings of the 24th IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, Atlanta, GA, USA: IEEE, Apr. 2010, pp. 1–12. DOI: 10.1109/IPDPS.2010.5470463.

[105] G. Tzenakis, K. Kapelonis, M. Alvanos, K. Koukos, D. Nikolopoulos, and A. Bilas, "Tagged Procedure Calls (TPC): Efficient Runtime Support for Task-Based Parallelism on the Cell Processor," in *Proceedings of the Fifth International Conference on High-Performance Embedded Architectures and Compilers **(HIPEAC)***, ser. Lecture Notes in Computer Science, vol. 5952, Pisa, Italy, Jan. 2010, pp. 307–321.

[104] F. Blagojevic, C. Iancu, K. Yelick, D. Nikolopoulos, B. Rose, and M. Curtis-Maury, "Scheduling Dynamic Parallelism on Accelerators," in *Proceedings of the Sixth ACM International Conference on Computing Frontiers **(CF)***, Ischia, Italy, May 2009, pp. 161–170.

[103] M. Rafique, B. Rose, A. Butt, and D. Nikolopoulos, "CellMR: A Framework for Supporting MapReduce on Asymmetric Cell-based Clusters," in *Proceedings of the 23rd IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, Rome, Italy: IEEE, May 2009, pp. 1–12. DOI: 10.1109/IPDPS.2009.5161062.

[102] S. Schneider, J. Yeom, B. Rose, J. Linford, A. Sandu, and D. Nikolopoulos, "A Comparison of Programming Models for Multiprocessors with Explicitly Managed Memory Hierarchies," in *Proceedings of the 14th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming **(PPOPP)***, Raleigh, NC, USA, Feb. 2009, pp. 131–140.

[101] M. Curtis-Maury, A. Shah, F. Blagojevic, D. Nikolopoulos, B. de Supinski, and M. Schulz, "Prediction Models for Multi-dimensional Power-Performance Optimization on Many Cores," in *Proceedings of the 17th International Conference on Parallel Architectures and Compilation Techniques **(PACT)***, Toronto, Ontario, Canada, Oct. 2008, pp. 250–259.

[100] F. Blagojevic, M. Curtis-Maury, J.-S. Yeom, S. Schneider, and D. Nikolopoulos, "Scheduling Asymmetric Parallelism on a PlayStation3 Cluster," in *Proceedings of the 8th IEEE International Symposium on Cluster Computing and the Grid **(CCGRID)***, Lyon, France, May 2008, pp. 146–153.

[99] M. Rafique, A. Butt, and D. Nikolopoulos, "DMA-based Prefetching for I/O-Intensive Workloads on the Cell Architecture," in *Proceedings of the Fifth ACM International Conference on Computing Frontiers **(CF)***, Ischia, Italy, May 2008, pp. 23–32.

[98] A. Aji, F. Blagojevic, W. Feng, and D. Nikolopoulos, "Cell-Swat: Modeling and Scheduling Wavefront Computations on the Cell BE," in *Proceedings of the Fifth ACM International Conference on Computing Frontiers **(CF)***, Ischia, Italy, May 2008, pp. 13–22.

[97] F. Blagojevic, X. Feng, K. Cameron, and D. Nikolopoulos, "Modeling Multi-grain Parallelism on Heterogeneous Multicore Processors: A Case Study of the Cell BE," in *Proceedings of the Third International Conference on High-Performance Embedded Architectures and Compilers **(HIPEAC)***, ser. Lecture Notes in Computer Science, vol. 4917, Göteborg, Sweden, Jan. 2008, pp. 38–52.

[96] A. Chernikov, C. Antonopoulos, N. Chrisochoides, S. Schneider, and D. Nikolopoulos, "Experience with Memory Allocators for Parallel Mesh Generation on Multi-core Architectures," in *Proceedings of the 10th International Conference on Numerical Grid Generation **(ISGG)***, Heraklion, Greece, Sep. 2007, pp. 159–168.

[95] F. Blagojevic, A. Stamatakis, C. Antonopoulos, and D. Nikolopoulos, "RAxML-CELL: Parallel Phylogenetic Tree Construction on the Cell Broadband Engine," in *Proceedings of the 21st IEEE/ACM International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Long Beach, CA, USA: IEEE, Mar. 2007, pp. 1–10. DOI: 10.1109/IPDPS.2007.370267.

[94] F. Blagojevic, D. Nikolopoulos, A. Stamatakis, and C. Antonopoulos, "Dynamic Multigrain Parallelization on the Cell Broadband Engine," in *Proceedings of the 12th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* ***(PPOPP)***, **Best Paper Award**, San Jose, CA, USA, Mar. 2007, pp. 90–100.

[93] M. Curtis-Maury, C. Antonopoulos, and D. Nikolopoulos, "A Comparison of Online and Offline Strategies for Program Adaptation," in *Proceedings of the 45th Annual ACM Southeast Conference* ***(ACMSE)***, Winston-Salem, NC, USA, Mar. 2007, pp. 162–167.

[92] ——, "PACMAN: A Performance Counters Manager for Intel Hyperthreaded Processors," in *Proceedings of the 3rd International Conference on the Quantitative Evaluation of Systems* ***(QEST)***, Riverside, CA, USA, Sep. 2006, pp. 141–144.

[91] M. Curtis-Maury, J. Dzierwa, C. Antonopoulos, and D. Nikolopoulos, "Online Power-Performance Adaptation of Multithreaded Programs using Event-Based Prediction," in *Proceedings of the 20th ACM International Conference on Supercomputing* ***(ICS)***, Queensland, Australia, Jun. 2006, pp. 157–166.

[90] C. Yue, R. Mills, A. Stathopoulos, and D. Nikolopoulos, "Runtime Support for Memory Adaptation in Scientific Workloads via Local Disk and Remote Memory," in *Proceedings of the 15th IEEE International Symposium on High Performance Distributed Computing* ***(HPDC)***, **Best Paper Award Nominee** (one of five papers), Paris, France, Jun. 2006, pp. 183–194.

[89] S. Schneider, C. Antonopoulos, and D. Nikolopoulos, "Scalable Locality-Conscious Multithreaded Memory Allocation," in *Proceedings of the 2006 ACM SIGPLAN International Symposium on Memory Management* ***(ISMM)***, Ottawa, Ontario, Canada, Jun. 2006, pp. 84–94.

[88] X. Ding, D. Nikolopoulos, S. Jiang, and X. Zhang, "MESA: Reducing Cache Conflicts by Integrating Static and Run-Time Methods," in *Proceedings of the 2006 IEEE International Symposium on Performance Analysis of Systems and Software* ***(ISPASS)***, Austin, TX, USA, Mar. 2006, pp. 189–198.

[87] S. Schneider, C. Antonopoulos, and D. Nikolopoulos, "Factory: An Object-Oriented Parallel Programming Substrate for Deep Multiprocessors," in *Proceedings of the 7th IEEE International Conference on High Performance Computing and Communications* ***(HPCC)***, Lecture Notes in Computer Science, vol. 3726, Sorrento, Italy, Sep. 2005, pp. 223–232.

[86] M. Curtis-Maury, T. Wang, C. Antonopoulos, and D. Nikolopoulos, "Integrating Multiple Forms of Multithreaded Execution on SMT Processors: A Quantitative Study with Scientific Workloads," in *Proceedings of the Second International Conference on the Quantitative Evaluation of Systems* ***(QEST)***, Torino, Italy, Sep. 2005, pp. 199–209.

[85] T. Wang, C. Antonopoulos, and D. Nikolopoulos, "smt-SPRINTS: Software Precomputation with Intelligent Streaming for Resource-Constrained SMTs," in *Proceedings of 11th 2005 International European Conference on Parallel and Distributed Computing* ***(EUROPAR)***, Lecture Notes in Computer Science, vol. 3648, Lisbon, Portugal, Aug. 2005, pp. 710–719.

[84] C. Antonopoulos, X. Ding, A. Chernikov, F. Blagojevic, D. Nikolopoulos, and N. Chrisochoides, "Multigrain Parallel Delaunay Mesh Generation: Challenges and Opportunities for Multithreaded Architecture," in *Proceedings of the 19th ACM International Conference on Supercomputing* ***(ICS)***, Cambridge, MA, USA, Jun. 2005, pp. 367–376.

[83] R. McGregor, C. Antonopoulos, and D. Nikolopoulos, "Scheduling Algorithms for Effective Thread Pairing on Hybrid Multiprocessors," in *Proceedings of the 19th IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, Denver, CO, USA: IEEE, Apr. 2005, 28a. DOI: 10.1109/IPDPS.2005.390.

[82] C. Antonopoulos, D. Nikolopoulos, and T. Papatheodorou, "Realistic Workload Scheduling Policies for Taming the Memory Bandwidth Bottleneck of SMPs," in *Proceedings of the 11th International Conference on High Performance Computing **(HIPC)***, Lecture Notes in Computer Science, vol. 3296, Bangalore, India, Dec. 2004, pp. 286–296.

[81] R. Mills, A. Stathopoulos, and D. Nikolopoulos, "Adapting to Memory Pressure from within Scientific Applications on Multiprogrammed COWs," in *Proceedings of the 18th IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, Santa Fe, NM, USA: IEEE, Apr. 2004. DOI: 10.1109/IPDPS.2004.1303002.

[80] D. Nikolopoulos, "Code and Data Transformations for Improving Shared Cache Performance on SMT Processors," in *Proceedings of the 5th International Symposium on High Performance Computing **(ISHPC)***, Lecture Notes in Computer Science, **Best Paper Award**, vol. 2858, Tokyo-Odaiba, Japan, Oct. 2003, pp. 54–69.

[79] C. Antonopoulos, D. Nikolopoulos, and T. Papatheodorou, "Scheduling Algorithms with Bus Bandwidth Considerations for SMPs," in *Proceedings of the 32nd International Conference on Parallel Processing **(ICPP)***, Kaohsiung, Taiwan, Oct. 2003, pp. 547–554.

[78] D. Nikolopoulos, "Malleable Memory Mapping: User-Level Control of Memory Bounds for Effective Program Adaptation," in *Proceedings of the 17th IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, Nice, France, Apr. 2003. DOI: 10.1109/IPDPS.2003.1213074.

[77] D. Nikolopoulos and C. Polychronopoulos, "Adaptive Scheduling under Memory Pressure on Multiprogrammed Clusters," in *Proceedings of the Second IEEE/ACM International Symposium on Cluster Computer and the Grid **(CCGRID)***, **Best Paper Award**, Berlin, Germany, May 2002, pp. 22–29.

[76] D. Nikolopoulos, "Quantifying and Resolving Remote Memory Access Contention on Hardware DSM Multiprocessors," in *Proceedings of the 16th IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, **Best Paper Award**, Fort Lauderdale, FL, USA, Apr. 2002. DOI: 10.1109/IPDPS.2002.1015503.

[75] D. Nikolopoulos and C. Polychronopoulos, "Adaptive Scheduling under Memory Pressure on Multiprogrammed SMPs," in *Proceedings of the 16th IEEE International Parallel and Distributed Processing Symposium **(IPDPS)***, Fort Lauderdale, FL, USA, Apr. 2002. DOI: 10.1109/IPDPS.2002.1015481.

[74] D. Nikolopoulos, E. Ayguadé, and C. Polychronopoulos, "Scaling Irregular Parallel Codes with Minimal Programming Effort," in *Proceedings of the ACM/IEEE Supercomputing'2001: High Performance Computing and Networking Conference **(SC)***, **Best Paper Award Nominee**, Denver, CO, USA: IEEE, Nov. 2001, p. 5. DOI: 0.1109/SC.2001.10013.

[73] I. Venetis, D. Nikolopoulos, and T. Papatheodorou, "A Transparent Operating System Infrastructure for Embedding Adaptability to Thread-Based Programming Models," in *Proceedings of the 7th International European Conference on Parallel and Distributed Computing **(EUROPAR)***, Lecture Notes in Computer Science, vol. 2150, Manchester, United Kingdom, Aug. 2001, pp. 504–513.

[72] C. Antonopoulos, D. Nikolopoulos, and T. Papatheodorou, "Informing Algorithms for Efficient Scheduling of Synchronizing Threads on Multiprogrammed SMPs," in *Proceedings of the 30th International Conference on Parallel Processing* ***(ICPP)***, Valencia, Spain, Sep. 2001, pp. 123–130.

[71] D. Nikolopoulos, E. Ayguadé, J. Labarta, T. Papatheodorou, and C. Polychronopoulos, "The Trade-Off Between Implicit and Explicit Data Distribution in Shared-Memory Programming Paradigms," in *Proceedings of the 15th ACM International Conference on Supercomputing* ***(ICS)***, Sorrento, Italy, Jun. 2001, pp. 23–37.

[70] D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, and E. Ayguadé, "Is Data Distribution Necessary in OpenMP?" In *Proceedings of ACM/IEEE Supercomputing'2000: High Performance Computing and Networking Conference* ***(SC)***, Article No. 47, ISBN: ISBN:0-7803-9802-5, **Best Technical Paper Award**, Dallas, TX, USA, Nov. 2000.

[69] ——, "Leveraging Transparent Data Distribution in OpenMP via User-Level Dynamic Page Migration," in *Proceedings of the 3rd International Symposium on High Performance Computing* ***(ISHPC)***, Lecture Notes in Computer Science, vol. 1940, Oct. 2000, pp. 415–427.

[68] ——, "User-Level Dynamic Page Migration for Multiprogrammed Shared-Memory Multiprocessors," in *Proceedings of the 29th International Conference on Parallel Processing* ***(ICPP)***, Toronto, Ontario, Canada, Aug. 2000, pp. 95–103.

[67] C. Antonopoulos, I. Venetis, D. Nikolopoulos, and T. Papatheodorou, "Efficient Dynamic Parallelism with OpenMP on Linux-Based SMPs," in *Proceedings of the 6th International Conference on Parallel and Distributed Processing Techniques and Applications* ***(PDPTA)***, vol. V, Las Vegas, NV, USA, Jul. 2000, pp. 2507–2514.

[66] D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, and E. Ayguadé, "A Case for User-Level Page Migration," in *Proceedings of the 14th ACM International Conference on Supercomputing* ***(ICS)***, Santa Fe, NM, USA, May 2000, pp. 119–130.

[65] D. Nikolopoulos and T. Papatheodorou, "Fast Synchronization on Scalable Cache-Coherent Multiprocessors using Hybrid Primitives," in *Proceedings of the 14th IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Cancun, Mexico, May 2000, pp. 711–719.

[64] D. Nikolopoulos, C. Antonopoulos, I. Venetis, P. Hadjidoukas, E. Polychronopoulos, and T. Papatheodorou, "Achieving Multiprogramming Scalability of Parallel Programs on Intel SMP Platforms: Nanothreading in the Linux Kernel," in *Parallel Computing Fundamentals and Applications: Proceedings of the International Conference ParCo'99* ***(PARCO)***, Delft, The Netherlands, Aug. 1999, pp. 623–630.

[63] E. Polychronopoulos, D. Nikolopoulos, T. Papatheodorou, X. Martorell, N. Navarro, and J. Labarta, "An Efficient Kernel-Level Scheduling Methodology for Multiprogrammed Shared Memory Multiprocessors," in *Proceedings of the 12th International Conference on Parallel and Distributed Computing Systems* ***(PDCS)***, Fort Lauderdale, FL, USA, Aug. 1999, pp. 148–155.

[62] D. Nikolopoulos and T. Papatheodorou, "System Software Support for Reducing Memory Latency on Distributed Shared-Memory Multiprocessors," in *Proceedings of the 7th Pan-Hellenic Conference on Informatics* ***(PCI)***, vol. 4, Ioannina, Greece, Aug. 1999, pp. 61–68.

[61] D. Nikolopoulos, E. Polychronopoulos, and T. Papatheodorou, "Fine-Grain and Multiprogramming-Conscious Nanothreading with the Solaris Operating System," in *Proceedings of the 5th International Conference on Parallel and Distributed Processing Techniques and Applications* ***(PDPTA)***, vol. IV, Las Vegas, NV, USA, Jul. 1999, pp. 1797–1803.

[60] D. Nikolopoulos and T. Papatheodorou, "A Quantitative Evaluation of Synchronization Algorithms and Disciplines on ccNUMA Systems: The Case of the SGI Origin2000," in *Proceedings of the 13th ACM International Conference on Supercomputing **(ICS)***, Rhodes, Greece, Jun. 1999, pp. 319–328.

[59] D. Nikolopoulos, E. Polychronopoulos, and T. Papatheodorou, "Enhancing the Performance of Autoscheduling with Locality-Based Partitioning on Distributed Shared Memory Multiprocessors," in *Proceedings of 4th International European Conference on Parallel and Distributed Computing **(EUROPAR)***, Lecture Notes in Computer Science, vol. 1470, Southampton, United Kingdom, Aug. 1998, pp. 491–501.

[58] E. Polychronopoulos, X. Martorell, D. Nikolopoulos, T. Papatheodorou, J. Labarta, and N. Navarro, "Kernel-Level Scheduling for the Nano-Threads Programming Model," in *Proceedings of the 12th ACM International Conference on Supercomputing **(ICS)***, Melbourne, Australia, Jul. 1998, pp. 337–344.

Papers in Workshops with Archival Proceedings

[57] M. Jackson, B. Ji, and D. S. Nikolopoulos, "Framefeedback: A closed-loop control system for dynamic offloading real-time edge inference," in *2024 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, 2024, pp. 584–591. DOI: 10.1109/IPDPSW63119.2024.00116.

[56] E. A. Mazied, D. Nikolopoulos, and S. Midkiff, "Fine-grain slicing of edge cloud servers for radio workloads," in *IEEE Workshop on Hot Topics in System Infrastructure **(HotInfra'23)**, in conjunction with ACM FCRC 2023*, Orlando, FL, 2023.

[55] R. A. Istrate, C. I. Malossi, C. Bekas, and D. S. Nikolopoulos, "Incremental training of deep convolutional neural networks," in *Proceedings of the International Workshop on Automatic Selection, Configuration, and Composition of Machine Learning Algorithms **(AutoML)***, Held in conjunction with **ECML/PKDD**, 2017, pp. 41–48.

[54] K. Chen, B. Varghese, P. Kilpatrick, and D. Nikolopoulos, "Power Modeling for Heterogeneous Cloud-Edge Datacentres," in *Proceedings of the Minisymposium on Edge Computing held in conjunction with the Parallel Computing 2017 Conference **(PARCO)***, ser. Advances in Parallel Computing, 2017, pp. 804–813.

[53] B. Varghese, N. Wang, J. Li, and D. Nikolopoulos, "Edge-as-a-Service: Towards Distributed Cloud Architectures," in *Proceedings of the Minisymposium on Edge Computing held in conjunction with the Parallel Computing 2017 Conference **(PARCO)***, 2017, pp. 784–793.

[52] K. Tovletoglou, C. Chalios, G. Karakonstantis, *et al.*, "An Energy-Efficient and Error-Resilient Server Ecosystem Exceeding Conservative Scaling Limits," in *Proceedings of the First Workshop on Energy-Efficient Servers for Cloud and Edge Computing **(ENESCE)***, In conjunction with the HiPEAC'17 Conference, Stockholm, Sweden, Jan. 2017.

[51] Y. Wu, C. Gillan, A. Novakovic, K. Tovletoglou, G. Tzenakis, H. Vandierendonck, G. Karakonstantis, D. Nikolopoulos, S. Barbhuiya, and U. Minhas, "Heterogeneous Servers based on Programmable Cores and Dataflow Engines," in *Proceedings of the First Workshop on Energy-Efficient Servers for Cloud and Edge Computing **(ENESCE)***, In conjunction with the HiPEAC'17 Conference, Stockholm, Sweden, Jan. 2017.

[50] M. Arif, H. Vandierendonck, D. Nikolopoulos, and B. de Supinski, "A Scalable and Composable Map-Reduce System," in *Proceedings of the Third Workshop on Advances in Software and Hardware for Big Data to Knowledge Discovery (**ASH**)*, 2016 IEEE International Conference on Big Data **(Big Data)**, Washington, D.C., Dec. 2016, pp. 2233–2242.

[49] D. Playfair, A. Trehan, and D. Nikolopoulos, "Big Data Availability: Selective Partial Checkpointing for In-Memory Database Queries," in *Proceedings of the Fourth Workshop on Scalable Cloud Data Management **(SCDM)***, 2016 IEEE International Conference on Big Data **(Big Data)**, Washington, D.C., Dec. 2016, pp. 2785–2794.

[48] K. Dichev and D. Nikolopoulos, "TwinPCG: Dual Thread Redundancy with Forward Recovery for Preconditioned Conjugate Gradient Methods," in *Second International Workshop on Fault Tolerant Systems, **IEEE FTS***, Held in conjunction with the IEEE International Conference on Cluster Computing, **CLUSTER**, Taipei, Taiwan, Sep. 2016, pp. 506–514.

[47] P. Harvey, K. Bakanov, I. Spence, and D. Nikolopoulos, "A Scalable Runtime for FPGA-Based Heterogeneous Exascale Hardware," in *Proceedings of the Sixth International Workshop on Runtime and Operating Systems for Supercomputers **(ROSS)***, Article No. 7, DOI: 10.1145/2931088.2931090, Kyoto, Japan, Jun. 2016.

[46] H. Vandierendonck, K. Murphy, M. Arif, J. Sun, and D. Nikolopoulos, "Operator and Workflow Optimization for High-Performance Analytics," in *Proceedings of the First International Workshop on Multi-Engine Data Analytics **(MEDAL)***, ser. EDBT/ICDT Workshops, Bordeaux, France, Mar. 2016.

[45] C. Trehan, H. Vandierendonck, G. Karakonstantis, and D. S. Nikolopoulos, "Energy Optimization of Parallel Workloads on Unreliable Hardware," in *Proceedings of the Second Workshop on Approximate Computing **(WAPCO)***, In conjunction with the HiPEAC 2016 Conference., Prague, Czech Republic, Jan. 2016.

[44] J. I. Aliaga, S. Catalán, C. Chalios, D. Nikolopoulos, and E. S. Quintana-Orti, "Performance and Fault Tolerance of Preconditioned Iterative Solvers on Low-Power ARM Architectures," in *Workshop on Energy and Resilience in Parallel Programming **(ERPP)***, Held in conjunction with the **ParCo2015** Conference, Edinburgh, United Kingdom, Sep. 2015.

[43] F. Alessi, P. Thoman, G. Georgakoudis, T. Fahringer, and D. Nikolopoulos, "Application-Level Energy Awareness for OpenMP," in *Proceedings of the 11th International Workshop on OpenMP **(IWOMP)***, ser. Lecture Notes in Computer Science, vol. 9342, Aachen, Germany, Oct. 2015, pp. 219–232.

[42] A. Hassan, H. Vandierendonck, and D. S. Nikolopoulos, "Energy-Efficient In-Memory Data Stores on Hybrid Memory Hierarchies," in *Proceedings of the 11th International Workshop on Data Management on New Hardware **(DAMON)**, in conjunction with ACM SIGMOD/PODS 2015*, Article No. 1, DOI: 10.1145/2771937.2771940, Melbourne, Australia, Jun. 2015.

[41] C. Chalios, E. S. Quintana-Orti, and D. Nikolopoulos, "Evaluating Asymmetric Multi-core Systems-on-Chip using Iso-Metrics," *CoRR*, Jan. 2015, Presented at the *First HiPEAC Workshop on Energy Efficiency with Heterogeneous Computing **(EEHCO)***. DOI: 10.13140/RG.2.1.3042.5120. [Online]. Available: http://arxiv.org/abs/1503.08104.

[40] C. J. Gillan, D. Nikolopoulos, G. Georgakoudis, R. Faloon, G. Tzenakis, and I. Spence, "On the Viability of Microservers for Financial Analytics," in *Proceedings of the Seventh ACM SIGHPC Workshop on High Performance Computational Finance **(WHPCF)***, New Orleans, LA, USA, Nov. 2014, pp. 29–36.

[39] G. Georgakoudis, D. Nikolopoulos, and S. Lalis, "Fast Dynamic Binary Rewriting to Support Thread Migration in Shared-ISA Asymmetric Multicores," in *Proceedings of the First International Workshop on Code Optimization for Multi and Many Cores* ***(COSMIC)***, Article No. 4, **Best Paper Award**, Shenzhen, China: ACM, Feb. 2013. DOI: 10.1145/2446920.2446924.

[38] P. Pratikakis, H. Vandierendonck, and D. Nikolopoulos, "A Programming Model for Deterministic Task-based Parallelism," in *Proceedings of the 2011 ACM SIGPLAN Workshop on Memory Systems Performance and Correctness* ***(MSPC)***, San Jose, CA, USA, Jun. 2011, pp. 7–12.

[37] H. Vandierendonck, P. Pratikakis, and D. Nikolopoulos, "Parallel Programming of General-Purpose Programs using Task-Based Programming Models," in *Proceedings of the 3rd USENIX Workshop on Hot Topics on Parallelism* ***(HotPar)***, Berkeley, CA, USA, May 2011, pp. 1–6.

[36] J. Yeom and D. Nikolopoulos, "A Runtime Framework for Optimizing Multi-dimensional Array Accesses on Multi-core Processors," Presented in *First International Workshop on Programming Models for Emerging Architectures* ***(PMEA)***, held in conjunction with the *18th International Conference on Parallel Architectures and Compilation Techniques* ***(PACT)***, Raleigh, NC, USA, Sep. 2009.

[35] D. Nikolopoulos, G. Back, J. Tripathi, and M. Curtis-Maury, "VT-ASOS: Holistic System Software Customization for Many Cores," in *Proceedings of the Workshop on the NSF Next Generation Software Program* ***(NSFNGS)***, Held in conjunction with the *22nd IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Miami, FL, USA: IEEE, Apr. 2008, pp. 1–5. DOI: 10.1109/IPDPS.2008.4536390.

[34] M. Curtis-Maury, K. Singh, S. McKee, F. Blagojevic, D. Nikolopoulos, B. de Supinski, and M. Schulz, "Identifying Energy-Efficient Concurrency Levels using Machine Learning," in *Proceedings of the First International Workshop on Green Computing* ***(GREENCOM)***, Held in conjunction with the *2007 IEEE International Conference on Cluster Computing* ***(CLUSTER)***, Austin, TX, USA, Sep. 2007, pp. 488–495.

[33] D. Nikolopoulos and K. Cameron, "Synthesizing Parallel Programming Models for Asymmetric Multi-Core Systems," Presented in *11th Workshop on High Performance Embedded Computing* ***(HPEC)***, Lexington, MA, USA, Sep. 2007.

[32] G. Back and D. Nikolopoulos, "Application-Specific Customization on Many-Core Platforms: The VT-ASOS Framework," Presented in *Second Workshop on Software and Tools for Multi-Core Systems* ***(STMCS)***, held in conjunction with the *2007 International Symposium on Code Generation and Optimization (CGO)*, San Jose, CA, USA, Mar. 2007.

[31] M. Curtis-Maury, J. Dzierwa, C. D. Antonopoulos, and D. Nikolopoulos, "Online Strategies for High-Performance Power-Aware Thread Execution on Emerging Multiprocessors," in *Proceedings of the Second Workshop on High-Performance Power-Aware Computing* ***(HPPAC)***, Held in conjunction with the *20th IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Rhodes, Greece, Apr. 2006. DOI: 10.1109/IPDPS.2006.1639598.

[30] M. Curtis-Maury, D. Nikolopoulos, and C. Antonopoulos, "Dynamic Program Stirring on Multiple Cores: How Hardware Performance Monitors Can Help Regulate Performance, Power, and Temperature Simultaneously," Presented in *Second Workshop on Functionality of Hardware Performance Monitors* ***(FHPM)***, held in conjunction with the *39th IEEE/ACM International Symposium on Microarchitecture* ***(MICRO)***, Orlando, FL, USA, Dec. 2006.

[29] C. Antonopoulos and D. Nikolopoulos, "Using Hardware Counters for Continuous Online Optimization: Lessons and Challenges," Presented in *First Workshop on Hardware Performance Monitor Design and Functionality* ***(FHPM)***, held in conjunction with the *11th International Symposium on High Performance Computer Architecture* ***(HPCA)***, San Francisco, CA, USA, Feb. 2005.

[28] M. Curtis-Maury, X. Ding, C. Antonopoulos, and D. Nikolopoulos, "An Evaluation of OpenMP on Current and Emerging Multithreaded Processors," in *Proceedings of the First International Workshop on OpenMP* ***(IWOMP)***, Lecture Notes in Computer Science, **Best Paper Award**, vol. 4315, Eugene, OR, USA, Jun. 2005, pp. 133–142.

[27] B. Lawson, C. Yue, E. Smirni, and D. Nikolopoulos, "Power-Aware Resource Allocation via Online Simulation with Multiple-Queue Backfilling," in *Proceedings of the 7th Workshop on Performability Modeling of Computer and Communication Systems* ***(PMCCS)***, Held in conjunction with the *Second International Conference on the Quantitative Evaluation of Systems* ***(QEST)***, Torino, Italy, Sep. 2005. DOI: 10.13140/2.1.2026.8324.

[26] T. Wang, F. Blagojevic, and D. Nikolopoulos, "Runtime Support for Integrating Precomputation and Thread-Level Parallelism on Simultaneous Multithreaded Processors," in *Proceedings of the 7th ACM SIGPLAN Workshop on Languages, Compilers and Runtime Support for Scalable Systems* ***(LCR)***, ser. ACM International Conference Proceedings Series, vol. 81, Houston, TX, USA: ACM, Oct. 2004, pp. 1–12. DOI: 10.1145/1066650.1066667.

[25] W. Ko, M. Yankelevsky, D. Nikolopoulos, and C. Polychronopoulos, "Effective Cross-Platform Multilevel Parallelization via Dynamic Adaptive Execution," in *Proceedings of the 7th International Workshop on High-Level Programming Models and Supportive Environments* ***(HIPS)***, Held in conjunction with the *16th IEEE International Parallel and Distributed Processing Symposium* ***(IPDPS)***, Fort Lauderdale, FL, USA, Apr. 2002. DOI: 10.1109/IPDPS.2002.1016495.

[24] D. Nikolopoulos and E. Ayguadé, "A Study of Transparent Implicit Data Distribution Mechanisms for OpenMP using the SPEC Benchmarks," in *Proceedings of the Second International Workshop on OpenMP Applications and Tools* ***(WOMPAT)***, Lecture Notes in Computer Science, vol. 2104, West Lafayette, IN, USA, Jul. 2001, pp. 115–129.

[23] D. Craig, F. Breg, S. Carroll, D. Nikolopoulos, and C. Polychronopoulos, "Improving Java Server Performance with Interruptlets," in *Proceedings of the First International Conference on Computational Science* ***(ICCS)***, Lecture Notes in Computer Science, vol. 2073, San Francisco, CA, USA, May 2001, pp. 223–232.

[22] D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, and E. Ayguadé, "UPMlib: A Runtime System for Tuning the Memory Performance of OpenMP Programs on Distributed Shared Memory Multiprocessors," in *Proceedings of the 5th ACM SIGPLAN Workshop on Languages, Compilers, and Runtime Systems for Scalable Computers* ***(LCR)***, Lecture Notes in Computer Science, vol. 1915, Rochester, NY, USA, May 2000, pp. 85–99.

[21] X. Martorell, J. Corbalan, D. Nikolopoulos, N. Navarro, E. Polychronopoulos, and T. Papatheodorou, "A Tool to Schedule Parallel Applications on Multiprocessors: The NANOS CPU Manager," in *Proceedings of the 6th International Workshop on Job Scheduling Strategies for Parallel Processing* ***(JSSPP)***, Lecture Notes in Computer Science, vol. 1911, Cancun, Mexico, May 2000, pp. 87–112.

[20] D. Nikolopoulos, E. Polychronopoulos, and T. Papatheodorou, "Efficient Runtime Thread Management for the Nano-Threads Programming Model," in *Proceedings of the Second International Workshop on Runtime Systems for Parallel Programming* ***(RTSPP)***, Lecture Notes in Computer Science, vol. 1388, Orlando, FL, USA, Apr. 1998, pp. 183–194.

Book Chapters

[19] D. Moyer and D. Nikolopoulos, "Punching holes in the cloud: Direct communication between serverless functions," in *Lecture Notes on Data Engineering and Communication Technologies*, R. Krishnamurthi, A. Kumar, S. S. Gill, and R. Buyya, Eds., vol. 162, Springer Nature, 2023, pp. 15–41.

[18] B. Varghese, N. Wang, D. Nikolopoulos, and R. Buyya, "Feasibility of Fog Computing," in ***Handbook of Integration of Cloud Computing, Cyber-Physical Systems and Internet of Things***, R. Ranjan, K. Mitra, P. P. Jayaraman, L. Wang, and A. Zomaya, Eds., Apr. 2019.

[17] S. Barbhuiya, Z. Papazachos, P. Kilpatrick, and D. Nikolopoulos, "LS-ADT: Lightweight and Scalable Anomaly Detection for Cloud Datacentres," in ***Communications in Computer and Information Science: Cloud Computing and Services Science***, D. F. Markus Helfert Víctor Méndez Muñoz, Ed., vol. 581, ISBN: 978-3-319-29581-7, Springer International Publishing, Switzerland, 2016, pp. 135–152.

[16] A. Khasymski, M. M. Rafique, A. Butt, S. Vazhkudai, and D. Nikolopoulos, "Realizing Accelerated Cost-Effective Distributed RAID," in ***Handbook on Data Centers***, S. Khan and A. Zomaya, Eds., ISBN: 978-1-4939-2091-4, Springer, 2015, pp. 729–753.

[15] M. Curtis-Maury and D. Nikolopoulos, "Energy-efficient Multithreading through Runtime Adaptation," in ***The Green Computing Book: Tackling Energy Efficiency at Large Scale***, W. Feng, Ed., ISBN: 978-1439819876, Chapman & Hall/CRC Computational Science, Jul. 2014, pp. 115–148.

[14] M. M. Rafique, A. Butt, and D. Nikolopoulos, "Programming and Managing Resources on Accelerator-Enabled Clusters," in ***Programming Multi-core and Many-core Computing Systems***, ser. Wiley Series on Parallel and Distributed Computing, S. Pllana and F. Xhafa, Eds., ISBN: 978-0-470-93690-0, Wiley-Blackwell, Mar. 2014.

[13] D. Li, D. Nikolopoulos, and K. Cameron, "Modeling and Algorithms for Scalable and Energy Efficient Execution on Multicore Systems," in ***Scalable Computing: Theory and Practice***, S. Khan, L. Wang, and A. Zomaya, Eds., ISBN: 978-1-118-16265-1, Wiley–IEEE Computer Society Press, Mar. 2013, pp. 157–184.

[12] H. Vandierendonck, D. Nikolopoulos, and P. Pratikakis, "Parallel Programming," in ***Encyclopedia of Software Engineering***, Taylor & Francis, Feb. 2013, ch. 62, pp. 1–14.

[11] C. Antonopoulos, D. Nikolopoulos, and T. Papatheodorou, "Scheduling Algorithms with Bus Bandwidth Considerations for SMPs," in ***High Performance Computing: Paradigm and Infrastructure***, L. Yang and M. Guo, Eds., ISBN: 978-0-471-65471-1, John Wiley & Sons, Dec. 2005, ch. 16, pp. 313–332.

Posters

[10] K. Tovletoglou, G. Karakonstantis, and D. Nikolopoulos, "Implementation of a Heterogeneous Reliability Framework," in *Proceedings of the 27th International Conference on Parallel Architectures and Compilation Technique (****PACT****)*, Poster Session, Limassol, Cyprus, Nov. 2018.

[9] J.-K. Lee, D. Nikolopoulos, and H. Vandierendonck, "Energy-Efficient Transprecision Techniques for Iterative Refinement," in *Proceedings of Supercomputing: International Conference on High-Performance Computing, Networking, Storage and Analysis (**SC**)*, Poster Session, Denver, CO, USA, Nov. 2017.

[8] K. Dichev and D. Nikolopoulos, "TwinCG: Dual Thread Redundancy with Forward Recovery for Preconditioned Conjugate Gradient Methods," in *IEEE International Conference on Cluster Computing **CLUSTER***, Taipei, Taiwan, Sep. 2016, pp. 162–163.

[7] S. Barbhuiya, Y. Wu, K. Murphy, H. Vandierendonck, G. Karakonstantis, and D. Nikolopoulos, "Accelerating Data Center Applications with Reconfigurable DataFlow Engines," in *Proceedings of the Second International Workshop on Heterogeneous High Performance Reconfigurable Computing (**H2RC'16**)*, Held in conjunction with the SC'16 International Conference on High Performance Computing, Networking, Storage and Analysis, Salt Lake City, UT, Nov. 2016.

[6] V. Vassiliadis, K. Parasyris, C. D. Antonopoulos, N. Bellas, S. Lalis, U. Naumann, J. Riehme, J. Deussen, and D. S. Nikolopoulos, "SCoRPiO: Significance Based Computing for Reliability and Power Optimization," in *Proceedings of the 2016 International Symposium on Code Generation and Optimization **(CGO)***, Barcelona, Spain, Mar. 2016.

[5] F. S. Zakkak, D. Chassapis, P. Pratikakis, D. S. Nikolopoulos, and A. Bilas, *C Source Level Transformations & Optimizations for Task-Based Parallelism*, Student Poster Session, 2011 International Symposium on Code Generation and Optimization ***(CGO)***, Chamonix, France, Apr. 2011.

[4] D. Li, K. Cameron, D. Nikolopoulos, M. Schulz, and B. D. Supinski, *Model-Based Hybrid MPI/OpenMP Power-Aware Computing*, Poster Session, ACM/IEEE Supercomputing'2009: High-performance Computing, Networking, Storage and Analysis ***(SC)***, Portland, OR, USA, Nov. 2009.

[3] M. Rafique, A. Butt, and D. Nikolopoulos, "Supporting I/O-intensive Workloads on the Cell Architecture," Presented in *6th USENIX Conference on File and Storage Systems **(FAST)***, San Jose, CA, USA, Feb. 2008.

[2] F. Blagojevic, C. Iancu, K. A. Yelick, D. Nikolopoulos, B. Rose, and M. Curtis-Maury, *Scheduling Dynamic Parallelism on the Cell BE*, Proceedings of the 15th Meeting of the IBM HPC Systems Scientific Computing User Group ***(SCICOMP)***, Barcelona, Spain, May 2009.

[1] M. Yankelevsky, W. Ko, D. Nikolopoulos, and C. Polychronopoulos, *Using Machine Descriptors to Select Parallelization Models and Strategies on Hierarchical Systems*, Poster Session, ACM/IEEE Supercomputing'2001: High Performance Networking and Computing Conference ***(SC)***, Denver, CO, USA, Nov. 2001.

Non-Refereed Publications

Edited Proceedings Volumes

[51] K. A. Gallivan, E. Gallopoulos, D. Nikolopoulos, and R. Beivide, "ICS'23: proceedings of the 37th acm international conference on supercomputing"," ISBN 979-8-4007-0056-9, Association for Computing Machinery, Association for Computing Machinery, Jun. 2023.

[50] L. Rauchwerger, K. Cameron, D. Nikolopoulos, and D. Pnevmatikatos, "ICS'22: 2022 acm International Conference on Supercomputing, Proceedings"," ISBN 978-1-4503-9281-5, Association for Computing Machinery, Association for Computing Machinery, Jun. 2022.

[49] C. Reaño and D. Nikolopoulos, "Deployment and use of accelerators, international workshop held in conjunction with the international conference on parallel processing," in *ACM International Conference Proceedings Series, VI*, Aug. 2022.

[48] ——, "Deployment and use of accelerators, international workshop held in conjunction with the international conference on parallel processing," in *ACM International Conference Proceedings Series, VI*, Aug. 2021.

[47] D. Nikolopoulos and B. D. Supinski, "Proceedings: 2018 ieee international conference on cluster computing **(CLUSTER)**," Oct. 2018.

[46] ——, "Proceedings: 2018ieee international symposium on performance analysis of systems and software **(ISPASS)**," May 2018.

[45] C. D. Antonopoulos and D. S. Nikolopoulos, "MiniSymposium on Edge Computing," in *Parallel Computing is Everywhere, Proceedings of the International Conference on Parallel Computing, ParCo 2017, 12-15 September 2017, Bologna, Italy*, 2017, p. 783. DOI: 10.3233/978-1-61499-843-3-783. [Online]. Available: https://doi.org/10.3233/978-1-61499-843-3-783.

[44] K. Cameron, T. Gamblin, and D. S. Nikolopoulos, Eds., ***VarSys Introduction.*** *First IEEE International Workshop on Variability in Parallel and Distributed Systems.* Held in conjunction with the 2016 IEEE International Parallel and Distributed Processing Symposium, Chicago, IL, 2016, p. 1068.

[43] D. Nikolopoulos and C. Antonopoulos, Eds., *Mini-Symposium on Energy and Resilience in Parallel Programming, Parallel Computing on the Road to Exascale, Proceedings of the International Conference on Parallel Computing*, ***ParCo 2015***, Edinburgh, Scotland, Sep. 2015, pp. 709–709. DOI: 10.3233/978-1-61499-621-7-709.

[42] J. L. Núñez-Yáñez, J. M. Moreno, and D. S. Nikolopoulos, "Guest Editorial: Special Issue on Energy Efficient Computing with Adaptive and Heterogeneous Architectures," ***IET Computers & Digital Techniques***, vol. 9, no. 1, pp. 1–2, 2015. DOI: 10.1049/iet-cdt.2014.0215. [Online]. Available: http://dx.doi.org/10.1049/iet-cdt.2014.0215.

[41] K. W. Cameron, A. Hoisie, D. K. Lowenthal, D. S. Nikolopoulos, S. Yalamanchili, L. Carrington, and J. Manzano, in *Proceedings of the 3rd International Workshop on Energy Efficient Supercomputing,* ***(E2SC'15)***, ISBN 978-1-4503-3994-0, Austin, Texas, USA: IEEE, Nov. 2015.

[40] K. W. Cameron, A. Hoisie, D. K. Lowenthal, D. S. Nikolopoulos, S. Yalamanchili, and A. Marquez, in *Proceedings of the 2nd International Workshop on Energy Efficient Supercomputing,* ***(E2SC'14)***, ISBN 978-1-4799-7036-0, New Orleans, Louisiana, USA: IEEE, Nov. 2014.

[39] B. R. de Supinski, B. Krammer, K. Fürlinger, J. Labarta, and D. S. Nikolopoulos, "Topic 1: Support Tools and Environments - (Introduction)," in ***Euro-Par 2013 Parallel Processing*** *- 19th International Conference, Aachen, Germany, August 26-30, 2013. Proceedings*, F. Wolf, B. Mohr, and D. an Mey, Eds., ser. Lecture Notes in Computer Science, vol. 8097, 2013, p. 3.

[38] A. Ramírez, D. S. Nikolopoulos, D. R. Kaeli, and S. Matsuoka, "Topic 16: GPU and Accelerators Computing," in *Euro-Par 2012 Parallel Processing - 18th International Conference,* ***Euro-Par 2012****, Rhodes Island, Greece, August 27-31, 2012. Proceedings*, ser. Lecture Notes in Computer Science, vol. 7484, Aug. 2012, pp. 857–858.

[37] Y. Cotronis, A. Danalis, D. S. Nikolopoulos, and J. Dongarra, Eds., ***Recent Advances in the Message Passing Interface - 18th European MPI Users' Group Meeting, EuroMPI 2011.*** *Proceedings*, Lecture Notes in Computer Science, vol. 6960, Santorini, Greece: Springer, Sep. 18–21, 2011.

Keynote Talks Invited

[36] D. Nikolopoulos, "AVA: Accelerator Virtualization Anywhere," in *Proceedings of the 13th Workshop on Virtualization in High-Performance Cloud Computing (**VHPC**)*, Jun. 2018.

[35] ——, "Energy Efficient Computing using Computational Significance Abstractions," in *UK-China Workshop on Shaping Low Carbon Energy Future*, Keynote talk, Belfast, UK, Aug. 2016.

[34] ——, "Using Computational Significance and Resilience in System Software Stacks," in *First Workshop on Energy-Aware High Performance Computing*, Keynote talk. Held in conjunction with the 2016 International Supercomputing Conference **(ISC)**, Frankfurt, Germany, Jun. 2016.

[33] ——, "Why Energy-Efficient High Performance Computing is Harder than Energy-Efficient Embedded Computing," in *Workshop on Power & Energy-Aware High Performance Computing on Emerging Technology*, Keynote talk. Held in conjunction with the 2015 International Supercomputing Conference **(ISC)**, Frankfurt, Germany, Jul. 2015.

[32] ——, "Programming the Energy Efficiency of HPC Systems," in *Proceedings of the 4th International Conference on Energy-Aware High Performance Computing*, **Keynote Talk**, Dresden, Germany, Sep. 2013.

[31] ——, "Connecting the Dots between Parallel Programming and Energy," in *Proceedings of the 21st Euromicro International Conference on Parallel, Distributed and Network-Based Processing*, **Keynote Talk**, Belfast, Northern Ireland, UK, Mar. 2013.

[30] ——, "To Program or not to Program the Memory Hierarchy?" In *Fourth Workshop on Programmability Issues for Heterogeneous Multicores **(MULTIPROG)***, **Keynote Address**, Heraklion, Greece, Jan. 2011.

[29] ——, "Facing the Challenges of Multicore Processor Technologies using Autonomic System Software," in *Proceedings of the 7th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications **(PDSEC)***, Held in conjunction with the 20th IEEE International Parallel and Distributed Processing Symposium (IPDPS), 1pp., **Keynote Address**, Rhodes, Greece, Apr. 2006.

Invited Papers

[28] D. Nikolopoulos, "New Approaches to Memory Reliability Management for Big Data Workloads," in *Abstracts of the 2018 SIAM Conference on Parallel Processing for Scientific Computing **(SIAM PP)***, Tokyo, Japan, Mar. 2018.

[27] ——, "NanoStreams: A Hardware and Software Stack for Real-Time Analytics on Fast Data Streams," *HiPEAC Info*, no. 38, pp. 15–16, May 2014.

[26] ——, "Reconciling Explicit with Implicit Parallelism," in *Abstracts of the 2012 SIAM Conference on Parallel Processing for Scientific Computing **(SIAM PP)***, Savannah, Georgia, USA, Feb. 2012.

[25] ——, "Region-Based Memory Management for Task Dataflow Models," in *Joint ENCORE & PEPPHER Workshop on Programmability and Portability for Emerging Architectures* ***(EPoPPEA)***, Held in conjunction with the 7th International Conference on High Performance and Embedded Architectures and Compilers (HIPEAC), Paris, France, Jan. 2012.

[24] M. Duranton *et al.*, "Computing Systems: Research Challenges Ahead: The HiPEAC Vision 2011/2012," Tech. Rep., 2011.

[23] J. Kesapides, D. Nikolopoulos, and A. Bilas, "ADAM: Automatic Dependence Analysis & Monitoring," in *Proceedings of the Sixth International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems* ***(ACACES)***, 4pp, Barcelona, Spain, Jul. 2010.

[22] D. Nikolopoulos, "Green Building Blocks: Software Stacks for Energy-efficient Clusters and Data Centres," *ERCIM News*, no. 79, pp. 29–30, Oct. 2009.

[21] D. Nikolopoulos and M. Katevenis, "Processors: The Challenge of Cooperation," ***Economist***, no. 71, Dec. 2009, In Greek.

[20] M. Alvanos, G. Tzenakis, D. Nikolopoulos, and A. Bilas, "Parallelization and Performance of an H.264 Video Encoder on the Cell B.E.," in *Proceedings of the Fifth International Summer School on Advanced Computer Architecture and Compilation for Embedded Systems* ***(ACACES)***, 4pp, Barcelona, Spain, Jul. 2009.

[19] D. Nikolopoulos, "Set-top Supercomputing: Scalable Software for Scientific Simulations on Game Consoles," *ERCIM News*, no. 74, pp. 44–45, Jul. 2008.

[18] ——, "Unified Scheduling of Polymorphic Parallelism on the Cell Processor," in *Abstracts of the 2008 SIAM Conference on Parallel Processing for Scientific Computing, Mini-workshop on the Cell Processor* ***(SIAM PP)***, Atlanta, GA, USA, Mar. 2008.

[17] ——, "System Software Challenges and Opportunities on Asymmetric Multi-core Processors," in *Proceedings of the 2007* ***Fall Creek Falls Conference*** *– Panel on Key Challenges Presented by Next Generation Hardware Systems*, Nashville, TN, USA, Sep. 2007.

[16] F. Blagojevic and D. Nikolopoulos, *Exploring Programming Models and Optimizations for the Cell Broadband Engine using RAxML*, 2006 Virginia Tech **High-End Computing Challenge**, 14 pp. **Awarded Best Entry for Performance**, Sep. 2006.

[15] C. Antonopoulos, N. Chrisochoides, and D. Nikolopoulos, "2-D Parallel Constrained Delaunay Mesh Generation: A Multigrain Approach on Deep Multiprocessors," in *Abstracts of the Workshop in Programming Models for HPCS Ultra-Scale Applications* ***(PMUA)***, Held in conjunction with the 19th ACM International Conference on Supercomputing (ICS). Invited presentation, Cambridge, MA, USA, Jun. 2005.

[14] ——, "Exploiting Simultaneous Multithreading for Parallel Mesh Generation: A Multigrain Approach on Deep Multiprocessors," in *13th International Meshing Roundtable* ***(IMR)***, *Poster Session*, Williamsburg, VA, USA, Sep. 2004.

[13] D. Nikolopoulos and A. Stathopoulos, "Application Awareness in Adaptation Middleware: Balancing Transparency with Performance and Adaptivity," in *Abstracts of the 2004 SIAM Conference on Parallel Processing for Scientific Computing* ***(SIAM PP)***, *Mini-workshop on Adaptivity in Parallel and Distributed Computing through Interoperating Systems and Applications*, 1 pp, San Francisco, CA, USA, Feb. 2004.

[12] D. Nikolopoulos, "Programming Environments for Multigrain Parallelization," in *Abstracts of the 2003 **EURESCO** Conference on Advanced Environments and Tools for High-Performance Computing*, Invited presentation, Albufeira, Portugal, Jun. 2003.

Technical Reports

[11] A. Rahman, V. Cvetkovic, K. Reece, A. Walters, Y. Hassan, A. Tummeti, B. Torres, D. Cooney, M. Ellis, and D. S. Nikolopoulos, *Marco: Multi-agent code optimization with real-time knowledge integration for high-performance computing*, 2025. arXiv: 2505.03906 [cs.DC]. [Online]. Available: https://arxiv.org/abs/2505.03906.

[10] X. Li, S. Ghafouri, B. Ji, H. Vandierendonck, D. John, and D. S. Nikolopoulos, *Qpart: Adaptive model quantization and dynamic workload balancing for accuracy-aware edge inference*, 2025. arXiv: 2506.23934 [cs.DC]. [Online]. Available: https://arxiv.org/abs/2506.23934.

[9] X. Li, D. Spatharakis, S. Ghafouri, J. Fan, H. Vandierendonck, D. John, B. Ji, and D. Nikolopoulos, *Sled: A speculative llm decoding framework for efficient edge serving*, 2025. arXiv: 2506.09397 [cs.DC]. [Online]. Available: https://arxiv.org/abs/2506.09397.

[8] J. Fan, Y. Zhang, X. Li, and D. S. Nikolopoulos, *Parallel cpu-gpu execution for llm inference on constrained gpus*, 2025. arXiv: 2506.03296 [cs.DC]. [Online]. Available: https://arxiv.org/abs/2506.03296.

[7] Y. Li, K. Assogba, A. Tripathy, M. Arif, M. Rafique, A. R. Butt, and D. Nikolopoulos, "Towards persistent memory based stateful serverless computing for big data applications," Tech. Rep., Sep. 2023. DOI: arxiv-2309.01662.

[6] S. Lyberis, P. Pratikakis, I. Mavroidis, and D. Nikolopoulos, "Myrmics: Scalable, dependency-aware task scheduling on heterogeneous manycores," Tech. Rep., Jun. 2016, ArXiv preprint arXiv:1606.04282. [Online]. Available: https://arxiv.org/abs/1606.04282.

[5] E. Ayguadé, C. Calidonna, J. Corbalan, M. Giordano, M. Gonazalez, H.-C. Hoppe, J. Labarta, M. Furnari, X. Martorell, N. Navarro, D. Nikolopoulos, J. Oliver, T. Papatheodorou, and E. Polychronopoulos, "Nanos: Effective integration of fine-grain parallelism exploitation and multiprogramming," Tech. Rep., 1999, Technical Report.

Theses

[2] D. Nikolopoulos, "System Software Support for Reducing Memory Latency on CC-NUMA Architectures," PhD Dissertation, Department of Computer Engineering and Informatics, University of Patras, Dec. 2000.

[1] D. Nikolopoulos and I. Tsolakis, "Load Balancing in Volunteer Computing Clusters," MSc Thesis, Department of Computer Engineering and Informatics, University of Patras, Jul. 1997.

Publication Metrics

Citation metrics

Source	citations	h-index
Google Scholar	7,385	41
Semantic Scholar	5,244	37
Scopus	3,883	29
Top 2% of Computer Scientists Worldwide according to Scopus Standardized Citation Indicators		

Knowledge and Technology Transfer & Commercialization

Patents

[1] "Optimizing DRAM memory based on read-to-write ratio of memory access latency," US Patent 10365997, Granted Jul. 30, 2019.

[2] "Source code profiling for line-level latency and energy consumption estimation,", US Patent 10474557, Granted Nov. 12, 2019.

[3] "Detecting sequential access data and random access data for placement on hybrid main memory for in-memory databases,", US Patent 10387127, Granted Aug. 20, 2019.

Technology Transfer Activities

[1] Train-less deep neural network architecture search **IBM Watson Studio** (2019)

[2] Query planning and data placement for in-memory transactional-analytical databases **SAP** (2019)

[3] High-level program parallelization software for FPGAs **Crevinn** (2019)

[4] Query planning and data placement for in-memory transactional-analytical databases **SAP** (2019)

[5] Automatic scaling of streaming operators, **IBM** (2010)

[6] Adoption of methods for memory management, dynamic software scaling by **Samsung, RedHat, Microsoft, Oracle, IBM, Alpine Electronics, Thales, Reservoir Labs** (2008–today)

Research Grants

Total amount of research awards led as Principal Investigator: **$36.5 million**
as CoInvestigator: **$67.26 million**

[52] **GPU-Accelerated High-Performance Computing to Supercharge AI Models for Pandemic Prevention**. Sponsor: National Science Foundation (National AI Resource). Role: Co-PI. Grant amount: N/A (HPC resource allocation) Dates of activity: 05/22/2024–11/22/2024

[51] **SWEET: Hardware and Software for Sustainable Wearable Edge Intelligence**. Sponsor: National Science Foundation. Grant ID: 2315851 Role: PI. Grant amount: $600,000 Dates of activity: 10/01/2023–09/30/2026.

[50] **WASML: Enabling Scalable Serverless Computer Vision**. Sponsor: Sony Faculty Innovation Award Grant ID: VTF-AG3ZURVF Role: PI. Grant amount: $100,000 Dates of activity: 08/01/2023–07/31/2024.

[49] **VirtEdgeAI: Seamless Virtualization of AI Accelerators in Edge Computing Substrates**. Sponsor: CISCO Grant ID: VTF-446663 Role: PI. Grant amount: $100,000. Dates of activity 02/01/2022–01/31/2023.

[48] **Collaborative Research: CNS Core: Medium: HardLambda: A new FaaS Abstraction for Cross-Stack Resource Management in Disaggregated Datacenters**. Sponsor: National Science Foundation. Grant ID: 2106634. Role: CoI. Grant amount: $600,000. CoI grant share: $210,000. Dates of activity: 06/01/2021–05/31/2024.

[47] **Belfast Region City Deal, Queen's Global Innovation Institute**. Sponsor: UK Treasury, 77%, Belfast City Council 23%. Role: PI. Grant amount: £56,000,000. CoI grant share: £15,000,000. Dates of activity: 01/2019–12/2018.

[46] **Biohaviour: Building the Blind Watchmaker**. Sponsor: EPSRC. Grant ID: EP/R003564/1. Role: CoI. Grant amount: £778,226. CoI grant share: £194,556. Dates of activity: 01/2018–06/2021.

[45] **Variability in Computing Systems**. Sponsor: Royal Academy of Engineering, Distinguished Visiting Fellowships. Role: Host PI (Kirk Cameron, Visiting Fellow). Grant amount: £4,100. Dates of activity 8/2017–7/2018.

[44] **Scalable, Virtualized Data Center Acceleration**. Sponsor: Intel. Role: CoI. Grant amount: £3,945. CoI grant share: £795. Dates of activity: 1/2017— 12/2020.

[43] **OPRECOMP: Open Transprecision Computing**. Sponsor: EU, Horizon 2020. Grant ID: H2020-732631. Role: PI. Grant amount: €5,999,510 (£5,091,933). QUB and PI grant share: €705,625 (£599,781). Dates of activity: 1/2017— 12/2020.

[42] **UNISERVER: A Universal Micro-server Ecosystem by Exceeding the Energy and Performance Scaling Boundaries**. Sponsor: EU, Horizon 2020. Grant ID: H2020-688540. Role: CoI. Grant amount: €4,815,810 (£4,333,717). QUB and PI grant share: €322,648 (£222,516). Dates of activity 2/2016–1/2019.

[41] **VINEYARD: Versatile Integrated Accelerator-based Heterogeneous Datacenters**. Sponsor: EU, Horizon 2020. Grant ID: H2020-687628. Role: PI. Grant amount: €6,283,895 (£4,467,972). QUB and PI grant share: €663,625 (£471,850). Dates of activity 2/2016–1/2019.

[40] **Principles and Practice of Near Data Computing**. Sponsor: Royal Society Wolfson Research Merit Award. Grant ID: WM150009. Role: PI. Grant amount and QUB grant share: £50,000. Dates of activity 10/2015–9/2020.

[39] **Meeting the Future Challenges of Heterogeneous and Extreme Scale Parallel Computing**. Sponsor: SFI-DEL, Investigator Awards. Grant ID: 14/IA/2474. Role: PI. Grant amount and QUB grant share: £521,947. Dates of activity 9/2015–9/2018.

[38] **ECOSCALE: Energy Efficient Heterogeneous Computing at Exascale**. Sponsor: EU, Horizon 2020. Grant ID: H2020-671632. Role: PI. Grant amount: €4,237,398 (£2,922,346). QUB and PI grant share: €696,750 (£480,518). Dates of activity: 10/2015–10/2018.

[37] **ALLScale: An Exascale Programming, Multi-objective Optimization and Resilience Management Environment Based on Nested Recursive Parallelism**. Sponsor: EU, Horizon 2020. Grant ID: H2020-671603. Role: PI. Grant amount: €3,366,196 (£2,463,217). QUB and PI grant share: €438,578 (£320,930). Dates of activity 10/2015–10/2018.

[36] **Crevinn Teoranta OpenCL Knowledge Transfer** Sponsor: Knowledge Transfer Partnership / Intertrade Ireland Fusion Project Grant ID: Role: PI. Grant amount: £39,000. Dates of activity 08/2015–09/2017

[35] **SERT: Scale-Free, Energy-Efficient and Resilient CSE Software for Mega-Core Systems**. Sponsor: EPSRC (Software for the Future II). Grant ID: EP/M01147X/1. Role: PI. Grant amount: £963,929. QUB and PI grant share: £694,909. Dates of activity 3/2015–3/2018.

[34] **RAPID: Heterogeneous Secure Multi-level Remote Acceleration Service for Low-Power Integrated Systems and Devices**. Sponsor: EU, Horizon 2020. Grant ID: H2020-644312. Role: PI. Grant amount: €2,203,800 (£1,695,231). QUB and PI grant share: €326,925 (£251,481). Dates of activity 01/2015–01/2018.

[33] **DIVIDEND: Distributed Heterogeneous Vertically Integrated Energy Efficient Data Centers**. Sponsor: EPSRC, CHIST-ERA. Grant ID: EP/M015742/1. Role: PI. Grant amount: €1,346,885 (£1,077,508). QUB and PI grant share: €279,646 (£223,717). Dates of activity 01/2015–01/2018.

[32] **HPDCJ: Heterogeneous Parallel and Distributed Computing with Java**. Sponsor: EPSRC, CHIST-ERA. Grant ID: EP/M015750/1 Role: PI. Grant amount: €1,721,010 (£1,376,808). QUB and PI grant share: €178,159 (£142,527). Dates of activity 10/2014–10/2017.

[31] **ASAP: An Adaptive, Highly Scalable Analytics Platform** Sponsor: European Commission, FP7-ICT. Grant ID: FP7-619706. Role: Co-PI. Grant amount: €2,245,128 (£1,909,122). QUB grant share: €407,720 (£346,701). Co-PI grant share: €183,548 (£156,078). Dates of activity: 3/2014–3/2017.

[30] **US-Ireland R&D Partnership Planning Grant: Cloud-based Electronic Integration of Patient Records (CLEAR)** Grant ID: PG20 Role: PI Grant amount: £1,356 QUB grant share: £1,356. PI grant share: £1,356. Dates of activity: 1/2014–2/2014.

[29] **ENPOWER: Energy-Proportional Computing with Heterogeneous and Reconfigurable Processors** Sponsor: EPSRC. Grant ID: EP/L004232/1. Role: PI. Grant amount: £741,043. QUB grant share: £348,325. PI grant share: £174,163. Dates of activity: 10/2013–10/2016.

[28] **ALEA: Abstraction-Level Energy Accounting and Optimization in Many-Core Programming Languages** Sponsor: EPSRC, System Approaches to Distributed and Embedded Architectures. Grant ID: EP/L000555/1. Role: Coordinator & PI. Grant amount: £669,561. QUB grant share: £394,025. PI grant share: £359,377. Dates of activity: 9/2013–9/2016.

[27] **NanoStreams: A Hardware and Software Stack for Real-Time Analytics on Fast Data Streams**. Sponsor: European Commission, FP7-ICT, Objective 3.4 Advanced Computing, Embedded and Control Systems. Grant ID: FP7-610509. Role: Coordinator & PI. Grant amount: €3,300,000. QUB grant share: €723,565. PI grant share: €470,317. Dates of activity: 9/2013–9/2016.

[26] **CACTOS: Context-Aware Cloud Topology Optimization and Simulation**. Sponsor: European Commission, FP7-ICT, Objective 1.2: Software Engineering, Services and Cloud Computing. Grant ID: FP7-610811. Role: PI. Grant amount: €3,215,751. QUB grant share: €583,330. PI grant share: €243,600. Dates of activity: 10/2013–10/2016.

[25] **SAP: PhD Project on High Availability for Petascale Systems**. Sponsor: SAP AG. Grant ID: UK-2013-009. Role: PI. Grant amount: £12,436. QUB grant share: £12,436. PI grant share: £12,436. Dates of activity: 08/2013–08/2019.

[24] **SCORPIO: Significance-Based Computing for Reliability and Power Optimization**. Sponsor: European Commission, FP7-FET-Open. Grant ID: FP7-323872. Role: PI. QUB Grant amount: €1,890,775. QUB and PI grant share: €273,400. Dates of activity: 06/2013–06/2016.

[23] **NovoSoft: Software Management of Non-Volatile Memory Hierarchies**. Sponsor: European Commission, Marie Curie Intra-European Fellowship. Grant ID: FP7-327744. Role: Scientist in Charge (Hans Vandierendonck, PI and ERC Marie Curie Fellow). Grant amount: €309,235. Dates of activity: 04/2013–04/2015.

[22] **Characterizing and Optimizing In-Memory Database Systems for Emerging Memory Technologies**. Sponsor: SAP UK Limited. Grant ID: R502. Role: Co-PI with Hans Vandierendonck PI. Grant amount: £34,298. Co-PI grant share: £17,149. Dates of activity: 03/2013–03/2016.

[21] **GEMSCLAIM: Greener Mobile Systems by Cross Layer Integrated Energy Management**. Sponsor: EPSRC, CHIST-ERA. Grant ID: EP/K017594/1. Role: PI. Grant amount: €1,776,688. QUB and PI grant share: €436,884. Dates of activity: 09/2012–09/2015.

[20] **Exascale Mesh Generation Runtime Systems**. Sponsor: Royal Academy of Engineering, Distinguished Visiting Fellowships. Role: Host PI (Nikos Chrisochoides, Visiting Fellow). Grant amount: £4,100. Dates of activity: 11/2012–06/2013.

[19] **HOLISTIC: Hardware and Software Techniques for Multicore Processor Architectures Reliability Enhancement**. Sponsor: Greek Ministry of Education, Lifelong Learning and Religious Affairs, Thales Programme, grant ID: 1103. Role: PI with Manolis Katevenis (co-PI). Grant amount: €600,000. FORTH-ICS and PI grant share: €98,000. Dates of activity: 01/2012–01/2016.

[18] **SCC–MR: Scalable and Energy-Efficient Runtime Support for the MapReduce Programming Model on the Intel SCC**. Sponsor: Intel Corporation. Equipment Donation. Role: PI. Dates of activity: 03/2010–03/2012.

[17] **TEXT: Towards Exascale Applications**. Sponsor: European Commission, FP7-INFRASTRUCTURES Programme. Grant ID: ICT-261580. Role: PI. Grant amount: €2,470,000. FORTH-ICS and PI grant share: €299,364. Dates of activity: 06/2010–09/2012.

[16] **ReMap: Rearchitecting MapReduce for Multicore Systems with Explicit Communication**. Sponsor: High Performance and Embedded Architectures and Compilers Network of Excellence, Cluster Collaboration Grant. Grant ID: ICT-217068. Role: PI with Eduard Ayguadé co-PI. FORTH-ICS and PI grant share: €3,000. Dates of activity: 06/2010–06/2011.

[15] **ENCORE: Enabling Technologies for a Programmable Many-core**. Sponsor: European Commission, FP7-ICT, Objective 3.4: Advanced Computing, Embedded and Control Systems. Grant ID: ICT-248647. Role: co-PI with Manolis Katevenis (PI). Grant amount: €2,533,000. FORTH-ICS grant share: €533,000. Co-PI grant share: €266,500. Dates of activity: 03/2010–03/2013.

[14] **Coupled Models of Diffusion and Individual Behavior over Extremely Large Scale Social Networks**. Sponsor: NSF OCI PetaApps Program. Grant ID: OCI-0904844. Role: co-PI with Madhav Marathe (PI), Keith Bisset, and Xizhou Feng (co-PIs). Grant amount: $1,182,798. Co-PI grant share: $200,000. Dates of activity: 08/2009–08/2013.

[13] **I-Cores: Hypervisor-based Synthesis of Custom Execution Environments for Multi-core Systems**. Sponsor: European Commission, FP7 Programme, Marie Curie International Reintegration Grants. Grant ID: IRG-224759. Role: PI. Grant amount: €100,000. Dates of activity: 01/2009–01/2013.

[12] **HiPEAC Fellowship: Runtime Systems for Parallel Programming**. Sponsor: European Commission, FP7 Programme, European Network of Excellence in High Performance and Embedded Architectures. Grant ID: ICT-217068. Role PI, hosted by Manolis Katevenis. FORTH-ICS and PI share: €8,600. Dates of activity: 01/2008–02/2008.

[11] **VT-ASOS: Virtualization Technologies for Application-Specific Operating Systems on Many-Core HPC Systems**. Sponsor: NSF Computer Systems Research Program. Grant ID: CNS-0720673. Role: PI, with Godmar Back (Co-PI). Grant amount: $300,000. PI grant share: $150,000. Dates of activity: 07/2007–07/2010.

[10] **Thermal Conductors: Runtime Software Support for Proactive Heat Management in Advanced Execution Systems**. Sponsor: NSF Computer Systems Research Program. Grant ID: CNS-0720750. Role: co-PI with Kirk W. Cameron (PI). Grant amount: $350,000. Co-PI grant share: $175,000. Dates of activity: 07/2007–07/2010.

[9] **Models and Adaptive Runtime Systems for Accessible Parallel Programming on IBM Multi-Core Systems**. Sponsor: IBM Faculty Award Program, Grant ID: VTF-874197. Role: PI. Grant amount: $15,000. Dates of activity: 05/2007–05/2008.

[8] **MISER: A High-Performance, Power-Aware Cluster.** Sponsor: NSF Computing Research Infrastructure Program. Grant ID: CNS-0709025. Role: co-PI with Kirk W. Cameron (PI) and Adrian Sandu (Co-PI). Grant amount: $500,000. Co-PI grant share: $166,667. Dates of activity: 07/2007–07/2008.

[7] **Faculty Startup Grant.** Sponsor: Virginia Tech. Role: PI. Grant amount: $100,000. Dates of activity: 08/2006–08/2007.

[6] **MELISSES: Liquid Services for Scalable Multithreaded and Multicore Execution on Emerging Supercomputers**. Sponsor: DOE Early Career Principal Investigator Award Program. Grant ID: DE-FG02-06ER25751, DE-FG02-05ER25689. Role: PI. Grant amount: $299,907. Dates of activity: 08/2005–08/2008.

[5] **Acquisition of STEMS: A Laboratory for End-to-End Development of Software and Tools for Emerging Multigrain Supercomputers**. Sponsor: NSF Major Research Instrumentation Program. Grant ID: CNS-0521381. Role: PI with Nikos Chrisochoides (co-PI) and Bruce Lowekamp (co-PI). Grant amount: $228,134. PI grant share: $76,045. Dates of activity: 05/2005–05/2008.

[4] **A Unified Framework for Multilevel Parallelization on Deep Computing Systems**. Sponsor: NSF Research Experiences for Undergraduates Program. Grant ID: CCF-0531887. Role: PI. Grant amount: $6,000. Dates of activity: 05/2005–08/2005.

[3] **A Unified Framework for Multilevel Parallelization on Deep Computing Systems.** Sponsor: NSF CAREER Award Program. Grant ID: CCF-0346867, CCF-0715051. Role: PI. Grant amount: $419,835. Dates of activity: 01/2004–01/2009.

[2] **An Application-Driven Approach for Runtime Scheduling of Multigrain Adaptive Computations.** Sponsor: NSF ITR Program. Grant ID: ACI-0312980. Role: co-PI with Nikos Chrisochoides (PI). Grant amount: $450,000. Co-PI grant share: $225,000. Dates of activity: 09/2003–09/2006.

[1] **Faculty Startup Grant.** Sponsor: College of William and Mary. Role: PI. Grant amount: $100,000. Dates of activity: 08/2002–08/2004.

Education

Courses Taught

[42] Spring'25 CS5914: Special Topics in Computer Science: LLMs for High-Performance Code Generation, Virginia Tech (Teaching Effectiveness: 5.70/6.00, Class Size 20)

[41] Fall'24 CS2506: Computer Organization II, Virginia Tech (Teaching Effectiveness: 4.90/6.00, Class Size 195)

[40] Spring'24 CS2506: Computer Organization II, Virginia Tech (Teaching Effectiveness: 5.10/6.00, Class Size 150)

[39] Fall'23 CS5510/ECE5510: Multiprocessor Programming, Virginia Tech (Teaching Effectiveness: N/A, Class Size 45)

[38] Spring'23 CS2506: Computer Organization II, Virginia Tech (Teaching Effectiveness: 4.87/6.00, Class Size 192)

[37] Fall'22 CS5914: Warehouse Scale Computing, Virginia Tech (Teaching Effectiveness: 5.79/6.00, Class Size 17)

[36] Spring'22 CS2506: Computer Organization II, Virginia Tech (Teaching Effectiveness: 5.16/6.00, Class Size 216)

[35] Fall'21 CS5510/ECE5510: Multiprocessor Programming, Virginia Tech (Teaching Effectiveness: 5.78/6.00, Class Size 35)

[34] Spring'21 CS2506: Computer Organization II, Virginia Tech (Teaching Effectiveness: 5.15/6.00, Class Size 148)

[33] Fall'20 CS4284 Systems & Networking Capstone, Virginia Tech (Teaching Effectiveness: 5.85/6.00, Class Size: 23)

[32] Spring'20 CS2506: Computer Organization II, Virginia Tech (Teaching Effectiveness: 5.16/6.00, Class Size: 82)

[31] Spring'15 ECS 1002: Design Projects, Queen's University of Belfast

[30] Fall'15, ECS 2001: Second Stage Design Projects, Queen's University of Belfast

[29] Spring'14 ECS 1002: Design Projects, Queen's University of Belfast

[28] Fall'13 ECS 2001: Second Stage Design Projects, Queen's University of Belfast

[27] Spring'13 ECS 1002: Design Projects, Queen's University of Belfast

[26] Fall'12 ECS 2001: Second Stage Design Projects, Queen's University of Belfast

[25] Fall'11 CS425: Computer Systems Architecture, University of Crete

[24] Fall'11 CS100: Introduction to Computer Science, University of Crete

[23] Spring'11 CS225: Computer Organization, University of Crete

[22] Spring'11 CS529: Multi-core Systems Programming, University of Crete

[21] Fall'10 CS425: Computer Systems Architecture, University of Crete

[20] Spring'10 CS225: Computer Organization, University of Crete

[19] Spring'10 CS529: Multi-core Systems Programming, University of Crete

[18] Fall'09 CS425: Computer Systems Architecture, University of Crete

[17] Spring'09 CS529: Multi-core Systems Programming, University of Crete

[16] Spring'09 CS225: Computer Organization, University of Crete

[15] Fall'08 CS425: Computer Systems Architecture, University of Crete

[14] Spring'08 CS425: Computer Systems Architecture, University of Crete

[13] Fall'07 CS5234: Advanced Parallel Computation, Virginia Tech

[12] Fall'07 CS2504: Introduction to Computer Organization, Virginia Tech

[11] Spring'07 CS2504: Introduction to Computer Organization, Virginia Tech

[10] Fall'06 CS4234: Parallel Computation, Virginia Tech

[9] Spring'06 CSCI644: Advanced Computer Architecture, College of William and Mary

[8] Fall'05 CSCI444/544: Principles of Operating Systems, College of William and Mary

[7] Spring'05 CSCI644: Advanced Computer Architecture, College of William and Mary

[6] Fall'04 CSCI444/544: Principles of Operating Systems, College of William and Mary

[5] Spring'04 CSCI644: Advanced Computer Architecture, College of William and Mary

[4] Fall'03 CSCI444/544: Principles of Operating Systems, College of William and Mary

[3] Spring'03 CSCI644: Advanced Computer Architecture, College of William and Mary

[2] Fall'02 CSCI444/544: Principles of Operating Systems, College of William and Mary

[1] Spring'02 ECE291: Computer Engineering II, University of Illinois at Urbana-Champaign

Seminars Taught

Spring'12 Implementation of Multi-core Programming Models, Universitat Politecnica de Catalunya
Spring'10 Multi-core Systems Programming and Optimization, Universitat Politecnica de Catalunya
Spring'08 Multi-core Systems Programming and Optimization, Universitat Politecnica de Catalunya
Spring'07 Multi-core Systems Programming and Optimization, Universitat Politecnica de Catalunya
Spring'04 Multithreaded Architectures and Software, College of William and Mary

Course and Curriculum Development

CS2506: Intro to Computer Organization II, Redeveloped to introduce new open-source processor and tools, Virginia Tech, 2022
ECS2001: Software and Electronic Systems Engineering Design Projects (2nd Stage), Developed from scratch, Queen's University of Belfast, 2016
ECS1002: Software and Electronic Systems Engineering Design Projects (1st Stage), Developed from scratch, Queen's University of Belfast, 2016
CS529: Multicore Processor Programming, Developed from scratch, University of Crete, 2009
CS425: Computer Systems Architecture, Major revision, University of Crete, 2009
CS225: Computer Organization, Major revision (multi-core, cache coherence), University of Crete, 2009
CS5234: Advanced Parallel Computation, Developed from scratch, Virginia Tech, 2006

Teaching Grants

[4] **Advanced Topics in Implementing Multicore Programming Models**. Sponsor: Universitat Politecnica de Catalunya. Amount: €2,400 Role: PI. Dates of activity: 05/2012–06/2012.

[3] **Multi-core Systems Programming**. Sponsor: Universitat Politecnica de Catalunya. Amount: €2,400 Role: PI. Dates of activity: 05/2010–06/2010.

[2] **Multi-core Systems Programming**. Sponsor: Universitat Politecnica de Catalunya. Amount: €3,600. Role: PI. Dates of activity: 05/2008–06/2008.

[1] **Multi-core Systems Programming and Optimization**. Universitat Politecnica de Catalunya. Funding amount: €3,600. Role: PI. Dates of activity: 05/2007–06/2007.

Supervision

Primary Advisor

[19] **Mona Moghadampanah** – Computer Science, Virginia Tech. In progress. Thesis area: *Scheduling of Workloads in the Continuum*.

[18] **Adib Rezaei** – Computer Science, Virginia Tech. In progress. Thesis area: *Accelerator Virtualization and Fault Tolerance*.

[17] **Sina Heidari** – Computer Science, Virginia Tech. In progress. Thesis area: *Large-Scale Processing of Graph Neural Networks*.

[16] **Jiakun Fan** – Computer Science, Virginia Tech. In progress. Thesis area: *Edge AI*.

[15] **Yunqi Shen** – Computer Science, Virginia Tech. In progress. Thesis area: *Tiered Memory Systems*.

[14] **Farhana Amin** – Computer Science, Virginia Tech. In progress. Thesis area: *Programming Models for and by LLMs*.

[13] **Xiangchen Li** – Electrical and Computer Engineering, Virginia Tech. In progress. Thesis area: *Edge Computing and Networking for AI*.

[12] **Emadeldin Abdrabou** – Electrical and Computer Engineering, Virginia Tech. In progress. Thesis area: *Virtualization Methods for RAN Slicing*.

[11] **Dr. Esha Barlaskar** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Ivor Spence, Peter Kilpatrick). November 2020. Thesis title: *User-Centric Cloud Application Management*.

[10] **Dr. Nan Wang** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. July 2019. September 2019. Thesis title: *Resource Management for Edge Computing Systems*.

[9] **Dr. Roxana Istrate** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. July 2019. July 2019. Thesis title: *Efficient Neural Network Architecture Search*.

[8] **Dr. Sakil Barbhuiya** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Peter Kilpatrick). July 2018. Thesis title: *Anomaly Detection in Cloud and Mobile Devices*.

[7] **Dr. Charalambos Chalios** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Hans Vandierendonck). July 2017. Thesis title: *Software-Defined Significance-Based Computing*.

[6] **Dr. Giorgis Georgakoudis** – Computer and Telecommunications Engineering, University of Thessaly (co-supervised with Spyros Lalis). May 2016. Thesis title: *Scheduling and Performance Characterization on Heterogeneous Computing Systems*.

[5] **Dr. Jae-seung Yeom** – Computer Science, Virginia Tech (co-supervised with Madhav Marathe). May 2014. Thesis title: *Optimizing Data Accesses for Scaling Data-intensive Scientific Applications*.

[4] **Dr. Spyros Lyberis** – Computer Science, University of Crete. July 2013. Thesis title: *Myrmics: A Scalable Runtime System for Global Address Spaces*.

[3] **Dr. Scott Schneider** – Computer Science, Virginia Tech. December 2010. Thesis title: *Shared Memory Abstractions for Heterogeneous Multicore Processors*.

[2] **Dr. Filip Blagojevic** – Computer Science, Virginia Tech. May 2008. Thesis title: *Scheduling on Asymmetric Parallel Architectures*.

[1] **Dr. Matthew Curtis-Maury** – Computer Science, Virginia Tech. March 2008. Thesis title: *Improving the Efficiency of Parallel Applications on Multithreaded and Multicore Systems*. **Virginia Tech Outstanding Ph.D. Dissertation Award**.

Co-Advisor

[17] **Shunyu Yao** – Computer Science, Virginia Tech. In progress, co-advised with Ali R. Butt. *Serverless HPC*.

[16] **Yuze Li** – Computer Science, Virginia Tech. *Programming Language Support for Far Memory*.

[15] **Kazi Hassan Ibn Arif** – Computer Science, Virignia Tech. *Sparsity in Multimodal Learning*.

[14] **Dr. Abdullahi Abubakar** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. December 2023. Thesis title: *Anomaly Detection in Longitudinal Data with Applications in Cloud Computing and Healthcare*.

[13] **Dr. Ioannis Tsiokanos** – Electronics, Electrical Engineering and Computer Science, Queen's University Belfast (co-supervised with Georgios Karakonstantis). December 2021. Thesis title: *Cross-layer Instruction-Aware Timing Error Mitigation & Evaluation for Energy Efficient Dependable Architectures*.

[12] **Dr. Konstantinos Tovletoglou** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Georgios Karakonstantis). June 2021. Thesis title: *Modeling and design of energy-efficient dependable memory sub-systems*.

[11] **Dr. Jiawen Sun** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Hans Vandierendonck). July 2017. Thesis title: *The GraphGrind framework: fast graph analytics on large shared-memory systems*.

[10] **Dr. Stuart McCool** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Peter Kilpatrick). July 2016. Thesis title: *Guidance Environments for Program Parallelization and Analysis*.

[9] **Dr. Ahmad Hassan** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Hans Vandierendonck). July 2016. Thesis title: *Software Management of Hybrid Main Memory Systems*.

[8] **Dr. Eoghan O'Neill** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Peter Kilpatrick). October 2015. Thesis title: *A Framework for Managing Shared Accelerators in Heterogeneous Environments*.

[7] **Dr. Aleksandr Khasymski** – Computer Science, Virginia Tech (co-supervised with Ali R. Butt). February 2015. Thesis title: *Accelerated Storage Systems*.

[6] **Dr. Chun-Yi Su** – Computer Science, Virginia Tech (co-supervised with Kirk W. Cameron). December 2014. Thesis title: *Energy-Aware Thread and Data Management in Heterogeneous Multi-Core and Multi-Memory Systems*.

[5] **Dr. Vassilis Papaefstathiou** – Computer Science, University of Crete (co-supervised with Manolis Katevenis). November 2013. Thesis title: *Architectural Support for Software-Guided Energy Reduction of Manycore Communication*.

[4] **Dr. Muhammad Mustafa Rafique** – Computer Science, Virginia Tech. September 2011 (co-supervised with Ali R. Butt). Thesis title: *An Adaptive Framework for Managing Heterogeneous Many-Core Clusters*.

[3] **Dr. Dong Li** – Computer Science, Virginia Tech. January 2011 (co-supervised with Kirk W. Cameron). *Scalable and Energy Efficient Execution Methods for Multicore Systems*.

[2] **Dr. John Christian Linford** – Computer Science, Virginia Tech (co-supervised with Adrian Sandu). May 2010. Thesis title: *Accelerating Atmospheric Modeling Through Emerging Multi-core Technologies*.

[1] **Dr. Richard Tran Mills** – Computer Science, College of William & Mary (co-supervised with Andreas Stathopoulos). November 2004. Thesis title: *Dynamic Adaptation to CPU and Memory Load in Scientific Applications*.

Postdoctoral Research Fellows

[17] **Dr. Dimitris Spatharakis** – Visiting Postdoctoral Fellow, School of Electrical and Computer Engineering, National Technical University of Athens. 04/25–05/25.

[16] **Dr. Sakil Barbhuiya** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. Research themes. Cloud-based Distributed Manufacturing. 05/18–08/19. Research themes: Smart manufacturing as a service.

[15] **Dr. Jun-Kyu Lee** – EEECS, Queen's University of Belfast. 04/17–12/20. Research themes: Approximate computing.

[14] **Dr. Damon Fenacci** – EEECS, Queen's University of Belfast. 01/17–01/18. Research themes: Memory management.

[13] **Dr. Giorgis Georgakoudis** – EEECS, Queen's University of Belfast. 05/16–09/18. Research themes: System software and hardware/software interface.

[12] **Dr. Blesson Varghese** – EEECS, Queen's University of Belfast. 01/16–06/17. Research themes: Energy-efficient and resilient high-performance computing.

[11] **Dr. Kiril Dichev** – EEECS, Queen's University of Belfast. 10/15–08/19. Research themes: Exascale resilience.

[10] **Dr. Cheol-Ho Hong** – EEECS, Queen's University of Belfast. 06/15–12/17. Research themes: Accelerator virtualization.

[9] **Dr. Lev Mukhanov** – EEECS, Queen's University of Belfast. 04/14–12/20. Research themes: Abstraction-level energy accounting in many-core programming languages.

[8] **Dr. Zafeirios Papazachos** – EEECS, Queen's University of Belfast. 01/14 – present. Research themes: Data center performance & reliability monitoring and optimization.

[7] **Dr. Hemant Mehta** – EEECS, Queen's University of Belfast. 10/15–04/17. Research themes: Virtual machine energy accounting.

[6] **Dr. Yun Wu** – EEECS, Queen's University of Belfast. 01/14–01/17. Research themes: Energy-proportional many-core computing systems.

[5] **Dr. Paul Harvey** – EEECS, Queen's University of Belfast. 01/16–09/16. Research themes: Exascale programming models.

[4] **Dr. Ahmed Sayed** – EEECS, Queen's University of Belfast. 09/14–02/15. Research themes: System software for real-time in-memory analytics.

[3] **Dr. Konstantina Mitropoulou** – EEECS, Queen's University of Belfast. 01/14–03/14. Research themes: System software for real-time in-memory analytics.

[2] **Dr. Hans Vandierendonck** – FORTH-ICS. 10/10–10/11. Research themes: Parallel programming, scheduling.

[1] **Dr. Christos D. Antonopoulos** – Computer Science, College of William & Mary. 06/04–06/06. Research themes: Energy-efficient parallel computation, runtime systems, memory management.

Research Assistants

[4] **Kai Chen** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. In progress. Research area: *Multi-scale Power and Performance Modeling*.

[3] **George Tzenakis** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. Research area: *Dynamic Parallelism and Elasticity* 10/12–02/17.

[2] **Chhaya Trehan** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. Research area: *Optimization Algorithms for Energy-Effiicency* 01/15–05/16.

[1] **Mahwish Arif** – Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (co-supervised with Hans Vandierendonck). Research area: *Performance Portability*.

Ph.D. Thesis Students

Visiting Ph.D. Students

[2] **Oscar Garcia Lorenzo** – Computer Architecture, University of Santiago de Compostela. April 2016. Thesis title: *Hardware counter-based performance analysis, modeling, and improvement through thread migration in NUMA systems*.

[1] **Dr. Satoshi Imamura** – System LSI Laboratory. Kyushu University. Research area: *Energy-Efficiency Optimization on Multicore NUMA Servers*.

M.Sc. Research Students

Primary Advisor

[29] **Katelyn Crumpacker** – Computer Science, Virginia Tech. *AI-Generated Energy-Efficient Software.*

[28] **Timothy Coyne** – Computer Science, Virginia Tech, May 2025. *Performance Portability of CUDA Across NVIDIA GPU Architectures*.

[27] **Max Fisher** – Computer Science, Virginia Tech, May 2025. Thesis title: *Analysis of Memory Access Patterns and Pre-Fetching Strategies for Large Language Model Inferencing* .

[26] **Moustafa Kahla** – Electrical and Computer Engineering, Virginia Tech. December 2023. Thesis title: *Automatic Source Code Transformation To Pass Compiler Optimization*.

[25] **Manthan Shah** – Electrical and Computer Engineering, Virginia Tech. June 2023. Thesis title: *Analysis of YOLOv7 Inference Performance through a Systems Perspective and the identification of optimization opportunities*.

[24] **Shreya Bhandare** – Computer Science, Virginia Tech. June 2023. Thesis title: *Designing RDMA-based Efficient Communication for GPU Remoting*..

[23] **Melissa Cameron** – Computer Science, Virginia Tech. June 2023. Thesis title: *Parallel Islands: A Diversity Aware Tool For Parallel Computing Education*.

[22] **Ishaan Gulati** – Computer Science, Virginia Tech. June 2023. Thesis title: *A Scalable Leader-Based Consensus Algorithm*.

[21] **Matthew Jackson** – Computer Science, Virginia Tech. May 2023. Thesis title: *Computational Offloading for Real-Time Computer Vision in Unreliable Multi-Tenant Edge Systems*.

[20] **Daniel Moyer** – Computer Science, Virginia Tech. May 2021. Thesis title: *Punching Holes in the Cloud: Direct Communication between Serverless Functions using NAT Traversal*

[19] **Dimitris Chassapis** – Computer Science, University of Crete. Thesis title: *Static Analysis for Parallelism and Correctness in Task Dataflow Programming Models*.

[18] **Ioannis Manousakis** – Computer Science, University of Crete. July 2013. Thesis title: *TPROF: An Energy Profiler for Task-Parallel Programs*.

[17] **Evangelos Kafentarakis** – Computer Science, University of Crete. July 2013. Thesis title: *Lprof: A Tool for Profiling Locality Awareness in a Task-Based Programming Model*.

[16] **Christi Symeonidou** – Computer Science, University of Crete. July 2013. Thesis title: *Distributed Region-Based Allocation and Synchronization*.

[15] **Kallia Chronaki** – Computer Science, University of Crete. June 2013. Thesis title: *Exploiting Pipelined Parallelism with Task Dataflow Programming Models*.

[14] **Alexandros Labrineas** – Computer Science, University of Crete. June 2013. Thesis title: *BDDT-SCC: A Task-Parallel Runtime for the Single-Chip Cloud Computer*.

[13] **Anastasios Papagiannis** – Computer Science, University of Crete. March 2013. Thesis title: *MapReduce on Distributed-Memory Many-Core Architectures*.

[12] **Angelos Papatriantafyllou** – Computer Science, University of Crete. March 2012. Thesis title: *Optimized Block-Based Dependence Analysis for Task Parallelism*.

[11] **Constantinos Koukos** – Computer Science, University of Crete (co-supervised with Angelos Bilas). August 2010. Thesis title: *Locality Management in Task-Based Parallel Programming Models*.

[10] **Pranav Tendulkar** – ALaRi Institute Advanced Studies in Embedded Systems Design. June 2010. Thesis title: *Runtime OpenMP Support using Hardware Primitives on Explicitly Memory Managed Multi-Processors*.

[9] **Michail Zampetakis** – Computer Science, University of Crete. April 2010. *Runtime Support for Programming Explicit Communication Chip Multiprocessors*.

[8] **Maria Katsamani** – Computer Science, University of Crete (co-supervised with Manolis Katevenis). March 2010. Thesis title: *Software Implementation of MPI Primitives on Multicore FPGA*.

[7] **Benjamin Rose** – Computer Science, Virginia Tech. May 2009. Thesis title: *Intra- and Inter-Chip Communication Support for Asymmetric Multicore Processors with Explicitly Managed Memory Hierarchies*.

[6] **Beran Nova Bryant** – Computer Science, Virginia Tech. May 2008. *Temperature-Aware Scheduling of Parallel Applications on Shared-Memory Multiprocessors.*

[5] **Harshil Shah** – Computer Science, Virginia Tech. May 2008. *Application Parallelization on the Cell/BE.*

[4] **Jyotirmaya Tripathi** – Computer Science, Virginia Tech. May 2008. *Scheduling Parallel Applications on Paravirtualized Shared-Memory Multiprocessors*.

[3] **Ankur Shah** – Computer Science, Virginia Tech. April 2008. Thesis title: *Prediction Models for Multi-dimensional Power-Performance Optimization on Many Cores*.

[2] **Scott Schneider** – Computer Science, College of William & Mary. June 2005. Thesis title: *Factory: An Object-Oriented Parallel Programming Substrate for Deep Multiprocessors*.

[1] **Robert McGregor** – Computer Science, College of William & Mary. May 2005. *Scheduling with Bus Bandwidth Considerations on Shared-Memory Multiprocessors.*

Co-Advisor

[4] **Foivos Zakkak** – Computer Science, University of Crete (co-supervised with Angelos Bilas). March 2012. Thesis title: *SCOOP: Language Extensions and Compiler Optimizations for Task-based Programming Models*.

[3] **Ioannis Kesapides** – Computer Science, University of Crete (co-supervised with Angelos Bilas). March 2011. Thesis title: *Dynamic Dependence Analysis on Multi-core Processors*.

[2] **Michail Alvanos** – Computer Science, University of Crete (co-supervised with Angelos Bilas). June 2010. Thesis title: *Design and Evaluation of a Task-based Parallel H.264 Video Encoder for the Cell Processor*.

[1] **George Tzenakis** – Computer Science, University of Crete (co-supervised with Angelos Bilas). October 2009. Thesis title: *Tagged Procedure Calls (TPC): Efficient Runtime Support for Task-Based Parallelism on the Cell Processor.*

Undergraduate (BEng/BSc) Research Students

[30] **Jack Williamson** – Computer Science, Virginia Tech. Summer 2023, Fall 2023. *Supporting flexible SIMD ISAs in WebAssembly*.

[29] **Anthony Nguyen** – Computer Science, Virginia Tech. Summer 2023, Fall 2023. *WebAssembly Performance Profiling*.

[28] **Alex Lin** – Computer Science, Virginia Tech. Summer 2023, Fall 2023. *Supporting GPUs in WebAssembly*.

[27] **Gianfranco Vivanco** – Computer Science, Virginia Tech. Summer 2023, Fall 2023. *Performance Characterization of LLM Inference*

[26] **Tatiana Monteiro** – Computer Science, Virginia Tech. Summer 2023. *Optimization of Inference from Decision Trees*.

[25] **Jamie Whiting** – Computer Science, Virginia Tech. Summer 2023. *RISC-V Simulation and System Software*.

[24] **Riyos Pudasaini** – Computer Science, Virginia Tech. Summer 2023. *Scalable Memory Allocators for Rust*.

[23] **Angel Gonzalez** – Computer Science, Virginia Tech. Summer 2023. *Cache Simulators*.

[22] **Kieran Siek** – Computer Science, Virginia Tech. Spring 2022. *Code Generation for Matrix ISA Extensions*

[21] **Aditya Iyer** – Computer Science, Virginia Tech. Spring 2022. *FaaS Workload Characterization*

[20] **Parker Harnack** – Computer Science, Virginia Tech. Summer 2021. *Performance Analysis of Persistent Memory Allocators*.

[19] **Lalitha Kupa** – Computer Science, Virginia Tech. Summer 2021. *NUMA Persistent Memory Management in the Operating System*.

[18] **Ishaan Singh** – Computer Science, Virginia Tech. Summer 2020. *Container Caching*.

[17] **Nikolaos Parasyris** – Electrical and Computer Engineering, National Technical University of Athens. September 2015. *Fine-grain energy profiling of large software repositories*.

[16] **Stylianos Ninidakis** – Computer Science, University of Crete. June 2011. *Parallelizing Irregular applications with Task Dataflow*.

[15] **Nikolaos Papakonstantinou** – Computer Science, University of Crete. June 2011. *Distributed Dynamic Dependence Analysis for Task Dataflow Models.*

[14] **Nikolaos Papadopoulos** – Computer Science, University of Crete, February 2012. *Scheduler-Driven Dynamic Data Placement for NUMA Multi-cores.*

[13] **Ioannis Manousakis** – Computer Science, University of Crete, May 2011. *Component-level Power Instrumentation on Multiprocessors.*

[12] **Dimitrios Chassapis** – Computer Science, University of Crete, May 2011. *Static Dependence Analysis for Task Dataflow Models.*

[11] **Christi Symeonidou** – Computer Science, University of Crete, May 2011. *Multi-node Communication Layer on the SARC FPGA Prototype.*

[10] **Alexandros Labrineas** – Computer Science, University of Crete, May 2011. *Early Release Optimizations for Task Dataflow Programming Models.*

[9] **Kallia Chronaki** – Computer Science, University of Crete, May 2011. *Parallel Loop Scheduling on the SARC Multi-core Processor*.

[8] **Christos Margiolas** – Computer Science, University of Crete. June 2010. *Data Placement and NUMA-Aware Optimization of MapReduce.*

[7] **Foivos Zakkak** – Computer Science, University of Crete, June 2010 (co-supervised with Angelos Bilas). *Source-to-Source Compiler Optimizations for Task Parallelism.*

[6] **Spyros Tsatuhas** – Computer Science, University of Crete, June 2010. *POSIX Threads Library Implementation on the SARC FPGA Prototype.*

[5] **Evangelos Kafentarakis** – Computer Science, University of Crete, June 2009. *Software Shared Memory Layer for CPU-GPU Systems.*

[4] **Anastasios Papagiannis** – Computer Science, University of Crete, June 2009. *Performance Analysis of Virtual Machine Schedulers in Xen.*

[3] **Patric Fiaux** – Computer Science, Virginia Tech, May 2007. *Application Parallelization and Optimization on Cell/BE.*

[2] **James Dzierwa** – Computer Science, College of William & Mary, May 2006. *Hardware Monitors for Power-Performance Adaptation.*

[1] **Evan McCreedy** – Computer Science, College of William & Mary, May 2004. *Multi-level Parallelization of MPIBlast.*

Service

Professional Activities

Membership in Professional Societies

IEEE Computer Society (IEEE), Fellow (2024–present), Distinguished Visitor (2024–present), Distinguished Contributor (2022–present), Senior Member (2011–2022), Member (1995–2011)
Association for Computing Machinery (ACM), Distinguished Member (2018–present), Senior Member (2011–2018), Member (1995–2011)
Asia-Pacific Artificial Intelligence Association (AAIA), Fellow (2024–present)
International Artificial Intelligence Industry Allliance (AIIA), Fellow (2024–present)
British Computer Society (BCS), Fellow (2014–present)
The Institution of Engineering and Technology (IET), Fellow (2017–present)
United Kingdom Council of Professors and Heads of Computing (CPHC), Member (2012–2019)
ACM Special Interest Group on Computer Architecture (SIGARCH), Member, (2000–present)
ACM Special Interest Group on Operating Systems (SIGOPS), Member, (2000–present)
ACM Special Interest Group on High Performance Computing (SIGHPC), Member, (2000-present)
Chartered Engineer (CEng) (2018–present)
Technical Chamber of Greece, Member (1996–present)

Conference Committee Activities

Steering Committee Chair:

[2] ACM International Conference on Supercomputing (ICS) – 2024 – present

[1] IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS) – 2022 – 2023

Steering Committee Associate Chair:

[1] ACM International Conference on Supercomputing (ICS) – 2023 – 2024

Program Chair/Co-Chair:

[8] ACM International Conference on Supercomputing (ICS) – 2023

[7] ACM International Conference on Supercomputing (ICS) – 2022

[6] International Workshop on Deployment and Use of Accelerators (DUAC) – 2025, 2024, 2023, 2022, 2021

[5] IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID) – 2014

[4] International Workshop on Power-Aware Algorithms, Systems and Architectures (PASA) – 2013

[3] EuroMPI MPI Conference – 2011

[2] IEEE International Conference on Scalable Computing and Communications (ScalCom) – 2011

[1] Workshop on Parallel Programming for Accelerators (PPAC) – 2009, 2010, 2011

Program Vice Chair/Area Chair:

[6] International European Conference on Parallel and Distributed Computing (EUROPAR), Global Area Chair, Scheduling and Load Management – 2022

[5] International Conference on Embedded Computer Systems: Architecture, Modeling and Simulation (SAMOS) – 2016

[4] IEEE/ACM International Conference on High-Performance Computing, Networking, Architecture and Storage (SC) – 2014

[3] European Conference on Parallel Processing (EuroPar) – 2012

[2] IEEE International Parallel and Distributed Processing Symposium (IPDPS) – 2011

[1] International Conference on Parallel Processing (ICPP) – 2007

General Chair:

[10] IEEE International Conference on Cluster Computing (CLUSTER) – 2018, 2010

[9] IEEE International Symposium on the Performance Analysis of Systems and Software (ISPASS) – 2018

[8] ISC Conference Workshop on Approximate and Transprecision Computing on Emerging Technologies – 2018

[7] HiPEAC Conference Workshop on Approximate Computing – 2018

[6] SC Conference Workshop on Energy Efficient Supercomputing – 2017, 2016, 2015, 2014, 2013

[5] ParCo Conference MiniSymposium on Edge Computing – 2017

[4] ParCo Conference MiniSymposium on Parallel Programming for Reliability and Energy Efficiency – 2016

[3] ParCo Conference MiniSymposium on Energy and Resilience in Parallel Programming – 2015

[2] HiPEAC Conference Workshop on Energy Efficient Heterogeneous Computing – 2015

[1] ICPP Conference Workshop on Power Aware Systems and Architectures – 2013

Program Committee:

[53] International Conference on Parallel Processing (ICPP) – 2025, 2024, 2021, 2020, 2019, 2018, 2017, 2016, 2014 2008, 2004, 2003

[52] IEEE/ACM International Symposium on Microarchitecture (Micro) – 2025, 2024 (External Review Committee)

[51] IEEE International Conference on Parallel Architectures and Compilation Techniques (PACT) – 2025, 2023, 2022, 2009

[50] International Symposium on Computer Architecture (ISCA) – 2025

[49] IEEE/ACM International Symposium on High Performance Distributed Computing (HPDC) – 2025, 2021, 2020, 2019

[48] ACM International Conference on Supercomputing (ICS) – 2025, 2021, 2020, 2017, 2014, 2012, 2011, 2009, 2007

[47] ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP) – 2025, 2021, 2020, 2015, 2013

[46] IEEE/SBC International Symposium on Computer Architecture and High-Performance Computing (SBAC-PAD) – 2025

[45] IEEE International Parallel and Distributed Processing Symposium (IPDPS) – 2024, 2023, 2021, 2020, 2019, 2018, 2017, 2014, 2013

[44] European Conference on Parallel Processing (EuroPar) – 2024, 2023, 2020, 2016, 2014 2013

[43] IEEE Big Data – 2024, 2023, 2018, 2017, 2016, 2015, 2014, 2013

[42] IEEE International Conference on Edge Computing (EDGE) – 2022

[41] ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) – 2021

[40] IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID) – 2022, 2021, 2020, 2019, 2018, 2016, 2015, 2013

[39] International Supercomputing Conference (ISC) – 2020, 2019, 2018

[38] International Green and Sustainable Computing Conference (IGSC) – 2020, 2019

[37] Workshop on Languages and Compilers for Parallel Computing (LCPC) – 2020

[36] IEEE International Conference on High-Performance Computing (HiPC) – 2019, 2016 2015, 2014

[35] Parallel Computing Conference (ParCo) – 2019, 2017, 2015

[34] IEEE Graph Computing Conference (GC) – 2019

[33] IEEE/ACM International Conference on High-Performance Computing, Networking, Storage and Analysis (SC) – 2018, 2016, 2015, 2013, 2012

[32] ACM International Conference on Distributed Event-Based Systems (DEBS) – 2018

[31] International Conference on Embedded Computer Systems: Architecture, Modeling, and Simulation (SAMOS) – 2018, 2017, 2015, 2014

[30] ISC Conference Workshop on Communication Architectures for HPC, Big Data, Deep Learning and Clouds at Extreme Scale (ExaComm) – 2018, 2017

[29] ACM Conference on Computing Frontiers (CF) – 2017, 2015, 2014, 2011

[28] IEEE Conference on Cluster Computing (CLUSTER) – 2016, 2015, 2013, 2012, 2011

[27] ISC Workshop on Energy-Aware High-Performance Computing (EnaHPC) – 2017, 2016, 2015, 2014

[26] IEEE International Conference on Big Data (BigData) – 2024, 2017, 2016, 2014

[25] IEEE International Conference on Ubiquitous Computing and Communications (IUCC) – 2016, 2012

[24] HiPEAC International Conference on High Performance and Embedded Architectures and Compilation – 2015, 2014, 2013, 2012

[23] ACM PPoPP Conference Workshop on General Purpose Processing using GPU (GPGPU) – 2015, 2014

[22] Feedback Computing Conference – 2015, 2010

[21] IEEE International Conference on Green Computing and Communications (GreenCom) – 2013, 2011, 2010

[20] IEEE International Conference on Parallel and Distributed Systems (ICPADS) – 2012, 2010, 2006, 2004

[19] IEEE High-Performance Computing and Communications Conference (HPCC) – 2012, 2009

[18] Symposium on Application Accelerators for High-Performance Computing (SAAHPC) – 2012, 2011, 2010, 2009

[17] IFIP Network and Parallel Computing Conference (NPC) – 2012, 2011, 2010

[16] International Conference on Architecture of Computer Systems (ARCS) – 2012, 2011, 2010

[15] IEEE Network and Storage Systems Conference (NAS) – 2011, 2010, 2009

[14] IEEE International Conference on e-Business Engineering (ICEBE) – 2011, 2010

[13] IEEE Green Computing Conference – 2010

[12] International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP) – 2010

[11] IEEE International Conference on Scalable Computing and Communications (ScalCom) – 2010, 2009

[10] IEEE Cloud Computing Conference (CloudCom) – 2010, 2009

[9] IEEE International Conference on Computational Science and Engineering (CSE) – 2010, 2009

[8] International Conference on Future Computational Technologies and Applications (Future Computing) – 2010

[7] International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT) – 2010

[6] IEEE Autonomic and Trusted Computing Conference (ATC) – 2008, 2007, 2006

[5] Balkan Conference on Informatics (BCI) – 2007

[4] ACM SIGMETRICS International Conference on Measurement and Modeling of Computer and Communication Systems – 2006

[3] IEEE International Conference on Pervasive Systems (ICPS) – 2005

[2] International Symposium on High Performance Computing (ISHPC) – 2003

[1] International Conference on Computational Science (ICCS) – 2001

Program Committee (Workshops):

[21] ICPP Conference Workshop on Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA) – 2016, 2015

[20] ParCo Conference MiniSymposium on Parallel Programming for Reliability and Energy-Efficiency (PP4REE) – 2016

[19] HiPEAC Conference Workshop on Approximate Computing (WAPCO) – 2016, 2015

[18] CGO Conference Workshop on Code Optimization for Multi- and Many-Cores (COSMIC) – 2015, 2014

[17] HiPEAC Conference Workshop on Programmability and Architectures for Heterogeneous Multicores (MULTIPROG) – 2015, 2014, 2013, 2012, 2011, 2010

[16] ICPP Conference Workshop on Parallel Programming Models and System Software for High-End Computing (P2S2) – 2014, 2013

[15] SC Conference Energy-Efficient Supercomputing Workshop (E2SC) – 2014, 2013

[14] ISC Conference Workshop on Virtualization for High-Performance Computing (VHPC) – 2014, 2013, 2012, 2011, 2010, 2009, 2008

[13] PLDI Conference Workshop on Memory Systems Performance and Correctness (MSPC) – 2014, 2011

[12] IPDPS Workshop on Accelerators and Hybrid Exascale Systems (ASHES) – 2014, 2013, 2012

[11] IBM Extreme Scale Parallel Architecture and Systems Workshop (ESPAS) – 2014

[10] Embedded Operating Systems Workshop (EWiLi) – 2013

[9] ISCA Conference Workshop on Future Architectural Support for Parallel Programming Workshop (FASPP) – 2012, 2011

[8] HiPEAC Workshop on Computer Architecture and Operating System CoDesign (CAOS) – 2012

[7] PACT Conference Workshop on Programming Models for Emerging Architectures (PMEA) – 2011, 2010, 2009

[6] IPDPS Conference Workshop on Software Engineering Innovation for HPC Clouds (SinHPC) – 2011

[5] ICS Conference on Workshop on Characterizing Applications for Heterogeneous Exascale Systems (CACHES) – 2011

[4] International Workshop on Cloud Computing Interoperability and Services (InterCloud) – 2010

[3] ISCA Conference Workshop on Next Generation Multi/Many-core Technologies (FMT) – 2010, 2008

[2] IPDPS Conference High-Performance Power-Aware Computing Workshop (HPPAC) – 2009, 2008

[1] IBM Cell Processor Programming Workshop (CELL) – 2009

Steering Committee Member:

[3] ACM International Conference on Supercomputing (ICS) – 2022–present

[2] IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS) – 2018–present

[1] IEEE International Conference on Cluster Computing (CLUSTER) – 2009–2011, 2017–2019

Other Committee Service:

[9] IEEE/ACM International Symposium on Microarchitecture (MICRO) – External Review Committee, 2024

[8] IEEE/ACM International Conference on High-Performance Computing, Networking, Storage and Analysis (SC) – Reproducibility Challenge Committee 2021

[7] IEEE/ACM International Conference on High-Performance Computing, Networking, Storage and Analysis (SC) – HPC Impact Showcase Chair 2017. Tutorials Committee 2014, 2013

[6] ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP) – External Review Committee 2014, 2012

[5] International Supercomputing Conference (ISC) – Tutorials Committee 2014, 2013, 2012

[4] HiPEAC Conference – Workshop and Tutorials Chair 2011

[3] EuroMPI Conference – Finance Chair 2011

[2] ACM International Conference on Supercomputing (ICS) – Finance Chair 2009, Workshops and Tutorials Chair 2007

[1] SIAM Conference on Parallel Processing for Scientific Computing – Mini-Workshop Organizer 2006, 2004

Session Chair

[20] ACM International Conference on Supercomputing (ICS) – 2025

[19] ACM International Conference on Supercomputing (ICS) – 2023 (Keynote Sessions)

[18] ACM International Conference on Supercomputing (ICS) – 2022 (Keynote Sessions)

[17] Workshop on Deployment and use of Accelerators (DUAC) – 2023, 2022

[16] IEEE/ACM International Symposium on High-Performance Distributed Computing (HPDC) – 2021

[15] ACM International Conference on Supercomputing (ICS) – 2021

[14] ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) – 2021

[13] ACM International Conference on Supercomputing (ICS) – 2020

[12] IEEE/ACM International Symposium on High-Performance Distributed Computing (HPDC) – 2020

[11] ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) – 2020

[10] IPDPS Workshop on Variability in Computing Systems (VarSys) – 2016

[9] SC Workshop on Energy-Efficient Supercomputing (E2SC) – 2014

[8] IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID) – 2014

[7] International Conference on Embedded Computer Systems: Architecture, Modeling and Simulation (SAMOS) – 2013

[6] ICPP Conference Workshop on Power Aware Systems and Architectures – 2013

[5] IEEE/ACM International Conference on High-Performance Computing, Networking, Analysis and Storage (SC) – 2013, 2012

[4] ACM International Conference on Computing Frontiers (CF) – 2011

[3] International Conference on High Performance and Embedded Architectures and Compilation (HiPEAC) – 2011, 2008

[2] International Conference on Parallel Processing (ICPP) – 2010

[1] IEEE International Parallel and Distributed Processing Symposium (IPDPS) – 2009

Editorial Boards

[17] IEEE Transactions on Parallel and Distributed Systems. **Associate Editor**, 2018–present

[16] IEEE Transactions on Parallel and Distributed Systems. **Best Paper Committee**, 2021

[15] IEEE Transactions on Parallel and Distributed Systems. **Artifact Evaluation Committee**, 2020–present

[14] Computer Physics Communications. **HPC Specialist Editor**, 2017–present

[13] Frontiers in High-Performance Computing. **Editor**, 2023–present

[12] Journal of Computational Sciences. **Editorial Board Member**, 2014–present

[11] Future Internet. **Editorial Board Member**, 2020–present

[10] International Journal of High Performance Computing Applications (IJHPCA). **Associate Editor**, 2012–present

[9] International Journal of Parallel, Emergent and Distributed Systems (IJPEDS). **Associate Editor**, 2010–present

[8] Sustainable Computing: Informatics and Systems (SUSCOM). **Editorial Board Member**, 2010–present

[7] International Journal of Information Technology, Communications and Convergence. **Editorial Board Member**, 2009

[6] Scientific Programming. **Editorial Board Member**, 2015–2016

[5] Concurrency and Computation: Practice and Experience (CCPE). **Editorial Review Board**, 2015

[4] Parallel Computing (PARCO). **Guest Editor**, 2015

[3] IET Computers and Digital Techniques. **Guest Editor**, 2014

[2] Sustainable Computing: Informatics and Systems (SUSCOM). **Guest Editor**, 2014

[1] Journal of Autonomic and Trusted Computing. **Editorial Board Member**, 2006–2007

Reviewer Work for Technical Journals, Conferences and Publishers post 2020

[17] ACM Transactions on Autonomous and Adaptive Systems (2025 – 1 paper)

[16] IEEE Transactions on Services Computing (2025 – 1 paper)

[15] Future Generation Computer Systems (2025 – 1 paper)

[14] IEEE Transactions on Mobile Computing (2025 – 1 paper)

[13] Frontiers in High Performance Computing (2024 – 1 paper)

[12] Future Generation Computer Systems (2023 – 1 paper)

[11] Computer Physics Communications (2022 – 1 paper)

[10] Engineering with Computers (2022 – 1 paper)

[9] Software – Practice & Experience (2022 – 1 paper)

[8] Concurrency and Computation – Practice & Experience (2022 – 1 paper)

[7] International Journal of High-Performance Computing Applications (2022 – 1 paper)

[6] Future Generation Computer Systems (2021 – 1 paper)

[5] Journal of Parallel and Distributed Computing (2021 – 1 paper)

[4] IEEE Access (2021 – 1 paper)

[3] Bioinformatics (2021 – 1 paper)

[2] IEEE Transactions on Parallel and Distributed Systems (2020 – 1 paper)

[1] IEEE Transactions on Computers (2020 – 1 paper)

Reviewer Work for Technical Journals, Conferences and Publishers pre 2020

[41] ACM Transactions on Computer Systems

[40] ACM Transactions on Programming Languages and Systems

[39] ACM Transactions on Parallel Computing

[38] ACM Transactions on Architecture and Code Optimization

[37] ACM Transactions on Embedded Computing Systems

[36] ACM Transactions on Reconfigurable Technology and Systems

[35] ACM Computer Architecture Letters

[34] IEEE Micro

[33] IEEE Computer

[32] IEEE Spectrum

[31] IEEE Transactions on Parallel and Distributed Systems

[30] IEEE Transactions on Computers

[29] IEEE Access

[28] The Computer Journal

[27] Proceedings of the VLDB Endowment

[26] Journal of Parallel and Distributed Computing

[25] International Journal of Parallel Programming

[24] IBM Journal of Research and Development

[23] BMC Bioinformatics Journal

[22] ETRI Journal

[21] IET Computers and Digital Techniques

[20] Springer Journal of Signal Processing Systems

[19] International Journal of High-Performance Computing Applications

[18] Elsevier Journal of Systems and Software

[17] Transactions on High Performance and Embedded Architectures and Compilation

[16] Journal of VLSI for Signal Processing

[15] Future Generation Computer Systems

[14] Scientific Programming

[13] EURASIP Journal on Embedded Systems

[12] Sustainable Computing: Informatics and Systems

[11] Software Practice and Experience

[10] Elsevier Journal of Network and Computer Applications

[9] Springer Nature

[8] Springer Computing

[7] Journal of Computer Science and Technology

[6] ACM Symposium on Parallel Algorithms and Architectures (SPAA)

[5] IEEE/ACM International Conference on Microarchitecture (MICRO)

[4] IEEE/ACM International Symposium on High-Performance Computer Architecture (HPCA)

[3] IEEE International Conference on Modeling and Analysis of Computer and Telecommunication Systems (MASCOTS)

[2] IEEE International Communications Conference (ICC)

[1] IEEE International Conference on Quantitative Evaluation of Systems (QEST)

Significant University and Departmental Leadership

[48] Computer Science Department Head Search Committee, Virginia Tech (2023–2024)

[47] Personnel Committee, Computer Science, Virginia Tech (Associate Chair 2024–present)

[46] Personnel Committee, Computer Science, Virginia Tech (Member 2022–present)

[45] University Proposal Development Institute (PDI) Mentor, Virginia Tech (2024–present)

[44] PI Eligibility Working Group, Virginia Tech (2022)

[43] Undergraduate Program Committee, Computer Science, Virginia Tech (2021–2022)

[42] Faculty Hiring Committee, Computer Science, Virginia Tech (2021)

[41] School of Computer Science Working Group, Virginia Tech (2020, 2021)

[40] Operations Working Group, Computer Science, Virginia Tech (2020)

[39] University Reputation Group, Queen's University Belfast (2018)

[38] Global Challenges Research Fund Committee, Queen's University Belfast (2018)

[37] Director of the Queen's Global Research Institute on Electronics, Communications and Information Technology (ECIT) (2018–2019)

[36] Vice Chancellor Selection Panel, Queen's University Belfast (2017)

[35] Director of Information Services Selection Panel, Queen's University Belfast (2017)

[34] University Brand Committee, Queen's University Belfast (2017–present)

[33] Member of the University Research Forum, Queen's University Belfast (2012–2019)

[32] Chair of the University High-Performance Computing Advisory Group, Queen's University Belfast (2012–2019)

[31] Excellence in Leadership Training Program Speaker, Queen's University Belfast (2017)

[30] Member of the University Academic Council, Queen's University Belfast (2016–2018)

[29] Member of the Faculty of Engineering and Physical Sciences Promotions Panel, Queen's University Belfast (2016–2019)

[28] Member of the Faculty of Engineering and Physical Sciences Executive Board, Queen's University Belfast (2016–2019)

[27] Head of School of EEECS, Queen's University Belfast (2016–2018)

[26] Post-Doctoral Researchers Peer Mentor, Queen's University Belfast (2017–2018)

[25] Early-Career Academic Staff Peer Mentor, Queen's University Belfast (2012–2019)

[24] Senior Academic Staff Recruitment Working Group, Queen's University Belfast (2017–2019)

[23] Acting Director of Center for Data Science and Scalable Computing, Queen's University Belfast (2016–2019)

[22] Member of the Senior Management Group Institute of Electronics, Communication and Information Technologies, Queen's University Belfast (2016–2019)

[21] Engineering (Unit of Assessment 12) REF Champion, Queen's University Belfast (2018–2019)

[20] Computer Science (UoA11) REF Champion, Queen's University Belfast (2015–2019)

[19] School of EEECS Research Strategy Group Co-Chair, Queen's University Belfast (2015–2019)

[18] BCS Program Accreditation Committee Group Member, Queen's University Belfast (2013)

[17] Computer Science Building Project Implementation Group, Queen's University Belfast (2013–2017)

[16] Excellence in Leadership Training Program, Queen's University Belfast (2012–2013)

[15] Member of the Senior Management Group School EEECS, Queen's University Belfast (2012–2018)

[14] School of EEECS Education Committee, Queen's University Belfast (2012)

[13] School of EEECS Academic Staff Hiring Panels, Queen's University Belfast (2012–2019)

[12] Undergraduate Curriculum Committee in Computer Science, University of Crete (2010–2012)

[11] University Data Center Infrastructure Committee, University of Crete (2010– 2012)

[10] Graduate Admissions Committee in Computer Science, University of Crete (2009–2011)

[9] Computer Organization Course Coordinator, Virginia Tech (2008–2009)

[8] Junior Faculty Mentor, Virginia Tech (2008–2009)

[7] Ph.D. Qualifying Exam Committee, Virginia Tech (2007–2009)

[6] Computer Science Computing Resources Committee, Virginia Tech (2006–2008)

[5] Computer Science Graduate Admissions Committee, College of William & Mary (2005–2006)

[4] Computer Science Graduate Curriculum Committee, College of William & Mary(2005–2006)

[3] Computer Science Faculty Hiring Committee, College of William & Mary (2002–2005)

[2] Computer Science Equipment Committee, College of William & Mary (2003–2005)

[1] Freshman Academic Advisor, College of William & Mary (2004–2006)

Significant External Leadership and Service

[48] Computing Research Association (CRA), Leadership Academy Committee (2024)

[47] American Association for the Advancement of Sciences (AAAS), Session Reviewer (2024)

[46] External Accreditation and Evaluation Panel, Graduate Program, Masters in Data Science and Machine Learning, Masters in Information Systems, Hellenic Open University (2023)

[45] External Accreditation and Evaluation Panel, Undergraduate Program, Department of Informatics and Communications, University of Ioannina (2022)

[44] Scientific Advisory Board, Kevin Tier-2 HPC Center, Queens University Belfast (2021–present)

[43] Faculty Appointment Committee, Norwegian University of Science and Technology, Norway (2022)

[42] External Evaluation Panel, Institute of Informatics and Telecommunications, National Center for Scientific Research "Demokritos", Greece (2022)

[41] Evaluation Panel, Institute of Computer Science, Foundation for Research and Technology – Hellas, Seed Grants (2021–present)

[40] Scientific Advisory Board, Marie Curie Individual Fellowship (2022)

[39] Faculty Appointment and Promotion Committee, University of Ioannina (2022)

[38] Faculty Appointment Committee, Heidelberg University (2021)

[37] External Accreditation and Evaluation Panel, Undergraduate Program, Department of Information Systems, Ionian University (2021)

[36] External Accreditation and Evaluation Panel, Undergraduate Program, School of Electrical and Computer Engineering, National Technical University of Athens (2021)

[35] Scientific Advisory Board Member, Institute of Computer Science, Foundation for Research and Technology Hellas (FORTH), (2020–present)

[34] Faculty Appointment and Promotion Committee, University of Crete (2020)

[33] Faculty Appointment and Promotion Committee, National Technical University of Athens (2020)

[32] Evaluation Panel, Foundation for Research and Technology – Hellas, Synergy Grants (2019–present)

[31] Faculty Appointment and Promotion Committee, Technical University of Crete (2019)

[30] Faculty Appointment and Promotion Committee, University of Thessaly (2019, 2016)

[29] Engineering and Physical Research Council UK (EPSRC) Strategic Advisory Team (SAT) Member – e-Infrastructure (2018–present)

[28] European Commission Framework Programme Consultant on Cloud Computing, European Commission DG Unit (2018)

[27] Faculty Appointment and Promotion Committee, University of Thessaly (2018)

[26] Faculty Appointment and Promotion Committee, Université Paris-Sorbonne (2018)

[25] Knowledge Transfer Partnership in Blockchain Technology, Vox Financial Partnerships (2018)

[24] Knowledge Transfer Partnership in OpenCL Technology, Crevinn (2017)

[23] Foreign Direct Investment Consultant, Invest Northern Ireland (2017)

[22] Faculty Appointment and Promotion Committee, Aristotle University of Thessaloniki (2017)

[21] Faculty Appointment and Promotion Committee, Chalmers University of Technology (2017)

[20] Faculty Appointment and Promotion Committee, University of Crete (2020,2018,2017,2016)

[19] Scientific Advisory Board Member, European Commission Horizon2020 INTERTWinE Project (2015–2018)

[18] Scientific Advisory Member, European Commission Horizon2020 Programme (2016)

[17] Grant Proposal Evaluator, King Abdullah University of Science and Technology (2016)

[16] Faculty Appointment and Promotion Committee, National Technical University of Athens (2016, 2014)

[15] Faculty Appointment and Promotion Committee, Ionian University (2016)

[14] Faculty Appointment and Promotion Committee, University of Athens (2015)

[13] Faculty Appointment and Promotion Committee, Technological Educational Institute of Athens (2015)

[12] Faculty Appointment and Promotion Committee, Technological Educational Institute of Piraeus (2015)

[11] Faculty Appointment and Promotion Committee, Technological Educational Institute of Western Greece (2015,2016)

[10] Faculty Appointment and Promotion Committee, Technological Educational Institute of Piraeus (2014)

[9] Faculty Appointment and Promotion Committee, Technological Educational Institute of Western Greece (2014)

[8] Industry-Academic Partnership Training, Westminster Higher Education Forum (2013)

[7] External examiner, School of Computing, University of Leeds (2012–present)

[6] Faculty Appointment and Promotion Committee, University of Crete (2013)

[5] Multiple Industrial Consultancies, Queen's University Belfast (2012–present)

[4] Faculty Appointment and Promotion Committee, University of Ioannina (2011)

[3] Faculty Appointment and Promotion Committee, Aristotle University of Thessaloniki (2011)

[2] Faculty Hiring Committee, Technical University of Denmark (2010)

[1] Faculty Hiring Committee, National Technical University of Athens (2010)

Ph.D. Examiner (UK) or Committee Member (US and elsewhere)

[49] **Shoaib Asig Qazi**. Department of Computer Science, Virginia Tech, 2025.

[48] **Frank Wayne**. Department of Computer Science, Virginia Tech, 2025. *Fast and Accurate Graph Clustering*.

[47] **Haihang Wu**. Department of Mechanical Engineering, University of Melbourne, 2025. *Towards Efficient and Robust Deep Neural Networks*.

[46] **Jing Chen**. Department of Computer Science and Engineering, Chalmers University of Technology, 2024. *Adaptive Task Scheduling and Resource Management Techniques for Energy Efficiency on Multi-core Architectures*.

[45] **Madhava Krishnan**. Department of Electrical and Computer Engineering, Virginia Tech, 2021 *Designing Scalable System Software for Emerging Storage Technologies*. Supervisor: Changwoo Min.

[44] **Anastasios Papagiannis**. Department of Computer Science, University of Crete, 2020 *Memory Mapped I/O For Fast Storage*. Supervisor: Angelos Bilas.

[43] **Simar Preet Singh**. Department of Computer Science & Engineering, Thapar University, 2020 *Energy-Efficient Load Balancing Algorithms in Fog Computing*. Supervisor: Rajesh Kumar.

[42] **Song Zheng**. Department of Computer Science, Virginia Tech, 2020 *Self-Adaptive Edge Services: Enhancing Reliability, Efficiency, and Adaptiveness under Unreliable, Scarce, and Dissimilar Resources*. Supervisor: Eli Tilevich.

[41] **Dimitrios Chasapis**. Barcelona Supercomputing Center, 2019 *Towards Resource-Aware Computing for Task-Based Runtimes and Parallel Architectures*. Supervisor: Marc Casas Guix, Miquel Moretó Planas.

[40] **Leszek Sliwko**. University of Westminster, 2019 *Intelligent Load Balancing in Cloud Computer Systems*. Supervisor: Vladimir Getov.

[39] **Mohammed Al-Hayanni**. Newcastle University, 2018 *Investigation into Scalable Energy and Performance Models for Many-Core Systems*. Supervisor: Alex Yakovlev.

[38] **Daniele di Sensi**. University of Pisa, 2018 *Self-Adaptive Solutions for Managing Performance and Power Consumption of Parallel Applications*. Supervisor: Marco Danelutto.

[37] **Ahsan Javed Awan**. KTH, 2017 *Performance Characterization and Optimization of In-Memory Data Analytics on a Scale-up Server*. Supervisor: Mats Brorsson.

[36] **Vassilis Vassiliadis**. University of Thessaly, 2017 *Optimization of Program Execution using Computational Significance*. Supervisor: Christos D. Antonopoulos.

[35] **Rajiv Nishtala**. Barcelona Supercomputing Center, 2017 *Energy Optimising Methodologies on Heterogeneous Data Centers*. Supervisor: Xavier Martorell.

[34] **Foivos Zakkak**. Computer Science, University of Crete, 2016 *Java on Scalable Memory Architectures*. Supervisor: Polyvios Pratikakis.

[33] **Ioannis Nikolakopoulos**. Computer Science and Engineering, Chalmers University, 2016 *Shared Memory Objects as Synchronization Abstractions: Algorithmic Implementations and Concurrent Applications*. Supervisor: Marina Papatriantafillou.

[32] **Spiros Agathos**. Computer Engineering, University of Ioannina, 2016 *Efficient OpenMP Runtime Support for General-Purpose and Embedded Multi-core Platforms*. Supervisor: Vassilis Dimakopoulos.

[31] **Madhavan Manivannan**. Computer Science and Engineering, Chalmers University, 2016 *Towards Runtime-Assisted Cache Management for Task-Parallel Programs*. Supervisor: Per Stenström.

[30] **Spiros Agathos**. Computer Engineering, University of Ioannina, 2016 *Efficient OpenMP Runtime Support for General-Purpose and Embedded Multi-core Platforms*. Supervisor: Vassilis Dimakopoulos.

[29] **Kiran Chandramohan**. Informatics, University of Edinburgh, 2016 *Mapping Parallelism to Heterogeneous Processors*. Supervisor: Michael O'Boyle.

[28] **Javier Bueno Hedo**. Computer Architecture, Universitat Politecnica de Catalunya, 2015 *Runtime Support for Multi-Level Disjoint Memory Address Spaces*. Supervisor: Xavier Martorell.

[27] **Eleftherios Kosmas**. Computer Science, University of Crete, December 2014. *Techniques for Enhancing Parallelism in Mechanisms that Automatically Execute Sequential Code in Concurrent Environments*. Supervisor: Panagiota Fatourou.

[26] **Georgios Vassiliadis**, Computer Science, University of Crete, December 2014. Thesis title: *Accelerating Stateful Network Packet Processing Using Graphics Hardware*. Supervisor: Evangelos Markatos, Sotiris Ioannidis.

[25] **Chun-Yi Su**, Computer Science, Virginia Tech, December 2014. Thesis title: *Resource Management on Heterogeneous Multi-Core, Multi-Memory Systems*. Supervisor: Kirk W. Cameron.

[24] **Hung-Ching Chang**, Computer Science, Virginia Tech, December 2014. Thesis title: *Measuring, modeling, and optimizing counterintuitive performance phenomena in power-scalable, parallel systems*. Supervisor: Kirk W. Cameron.

[23] **Muhammad Tayyab Chaudhry**, Computer Science and Information Technology, University of Malaya, December 2014. Thesis title: *Thermal-Aware Scheduling in Green Data Centers*. Supervisor: Ling Teck Chaw.

[22] **Pranav Tendulkar**, Computer Science, Verimag and University of Grenoble, France, October 2014. Thesis title: *Mapping and Scheduling on Multicore Processors using SMT Solvers*. Supervisor: Oded Maler.

[21] **Iasonas Polakis**, Computer Science, University of Crete, Greece, February 2014. Thesis title: *Online Social Networks from a Malicious Perspective: Novel Attack Techniques and Defense Mechanisms*. Supervisor: Evangelos Markatos.

[20] **Anastasios Nanos**, Electrical and Computer Engineering, National Technical University of Athens, Greece, December 2013. Thesis title: *Efficient I/O Resource Sharing in Virtual Machine Environments*. Supervisor: Nectarios Koziris.

[19] **Nikolaos Kallimanis**, Computer Science, University of Ioannina, Greece, May 2013. Thesis title: *Highly Efficient Synchronization Techniques in Shared Memory Distributed Systems*. Supervisor: Panagiota Fatourou.

[18] **Mushen Owaida**, Computer & Communication Engineering, University of Thessaly, Greece, September 2012. Thesis title: *Using Parallel Programming Models for Architectural Synthesis*. Supervisor: Nikolaos Bellas.

[17] **Carlos Villavieja**, Computer Architecture, Universitat Politecnica de Catalunya, January 2012. Thesis title: *Hardware and Software Support for Distributed Shared Memory in Chip Multiprocessors*. Supervisor: Alex Ramirez.

[16] **Demetrios Antoniades**, Computer Science, University of Crete, December 2011. Thesis title: *Understanding File and Information Sharing Services in Web 2.0*. Supervisor: Evangelos Markatos.

[15] **Mauricio Alvarez**, Computer Architecture, Universitat Politecnica de Catalunya, September 2011. Thesis title: *Parallel Video Decoding*. Supervisor: Alex Ramirez.

[14] **Elias Athanasopoulos**, Computer Science, University of Crete, March 2011. Thesis title: *Modern Techniques for the Detection and Prevention of Web 2.0 Attacks*. Supervisor: Evangelos Markatos.

[13] **Andrea Di Biaggio**, Electronics and Informatics, Politecnico di Milano, December 2010. Thesis title: *Synchronization and Data Distribution Optimization for Distributed Shared Memory Multiprocessors*. Supervisor: Stefano Crespi Reghizzi.

[12] **Stamatis Kavadias**, Computer Science, University of Crete, September 2010. Thesis title: *Direct Communication and Synchronization Mechanisms in Chip Multiprocessors*. Supervisor: Manolis Katevenis.

[11] **Kornilios Kourtis**, Electrical and Computer Engineering, National Technical University of Athens, April 2010. Thesis title: *Data Compression Techniques for Performance Improvement of Memory-Intensive Applications on Shared Memory Architectures*. Supervisor: Nectarios Koziris.

[10] **Nikolaos Anastopoulos**, Electrical and Computer Engineering, National Technical University of Athens, March 2010. Thesis title: *Techniques for the Optimization and Efficient Mapping of Parallel Code on Computational Nodes with Multithreaded and Multicore Processors*. Supervisor: Nectarios Koziris.

[9] **Dimitrios Syrivelis**, Computer & Communication Engineering, University of Thessaly, June 2009. Thesis title: *Exploiting Reconfigurable Heterogeneous Parallel Architectures in a Multitasking Context: a Systems Approach*. Supervisor: Spyros Lalis.

[8] **Matthew Tolentino**, Computer Science, Virginia Tech, February 2009. Thesis title: *Managing Memory for Power, Performance, and Thermal Efficiency*. Supervisor: Kirk W. Cameron.

[7] **Guanying Wang**, Computer Science, Virginia Tech, September 2009. Thesis title: Evaluating MapReduce Systems: A Simulation Approach. Supervisor: Ali R. Butt

[6] **Montse Farreras**, Computer Architecture, Universitat Politecnica de Catalunya, December 2008. Thesis title: *Optimizing Programming Models for Massively Parallel Computers*. Principal Supervisor: Toni Cortes.

[5] **Andrey Chernikov**, Computer Science, College of William & Mary, August 2007. Thesis title: *Parallel Generalized Delaunay Mesh Refinement*. Supervisor: Nikos Chrisochoides.

[4] **Qi Zhang**, Computer Science, College of William & Mary, December 2006. Thesis title: *The Effect of Workload Dependence in Systems: Experimental Evaluation, Analytic Models, and Policy Development*. Supervisor: Evgenia Smirni.

[3] **Songqing Chen**, Computer Science, College of William & Mary, August 2004. Thesis title: *Building Internet Caching Systems for Multimedia Content Delivery*. Supervisor: Xiaodong Zhang.

[2] **Kevin Barker**, Computer Science, College of William & Mary, May 2004. Thesis title: *Runtime Support for Load Balancing of Parallel Adaptive and Irregular Applications*. Supervisor: Nikos Chrisochoides.

[1] **Zhichun Zhu**, Computer Science, College of William & Mary, August 2003. Thesis title: *Power Considerations for Memory-related Microarchitecture Designs*. Supervisor: Xiaodong Zhang.

Government Research Funding Panelist & Reviewer Service

[42] National Science Foundation (BSF). Panelist, 2025

[41] French National Research Agency (ANR). Panelist, 2025

[40] Hellenic Foundation for Research and Innovation. Greece. Panelist, 2025

[39] National Science Foundation. Computer and Information Science and Engineering. US. Panelist, 2024

[38] Hellenic Foundation for Research and Innovation. Greece. Panelist, 2024

[37] National Science Foundation. Computer and Information Science and Engineering. US. Panelist, 2023

[36] National Science Foundation. Computer and Information Science and Engineering. US. Panelist, 2021

[35] Coastal Virginia Center for Cyber Innovation (COVA CCI). US. Grant Proposal Reviewer, 2021

[34] Knowledge Foundation Sweden. Grant Proposal Reviewer, 2021

[33] Italian National Research Council (CINECA). Grant Proposal Reviewer, 2021

[32] European Research Council (ERC). Grant Proposal Reviewer, 2020

[31] US Department of Energy. Grant Proposal Reviewer, 2020

[30] Swiss National Science Foundation. Grant Proposal Reviewer, 2020, 2016

[29] Royal Academy of Engineering, United Kingdom. Grant Proposal Reviewer, 2017

[28] Grant Proposal Evaluator Austrian Academy of Sciences, 2017

[27] Technology Foundation STW, The Netherlands. Grant Proposal Reviewer, 2016

[26] National Science Center Poland. Grant Proposal Reviewer, 2016

[25] Natural Science and Engineering Research Council of Canada (NSERC). Discovery Grants Panelist, 2016

[24] University of Cyprus Research Foundation. Grant Proposal Reviewer, 2016

[23] Royal Academy of Engineering, United Kingdom. Grant Proposal Reviewer, 2015

[22] Natural Science and Engineering Research Council of Canada (NSERC). Discovery Grants Panelist, 2015

[21] Natural Science and Engineering Research Council of Canada (NSERC). Discovery Grants Panelist, 2014

[20] UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2021

[19] UK Engineering and Physical Sciences Research Council (EPSRC). Platform Grant Panelist, 2015

[18] UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2018

[17] UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2017

[16] UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2014

[15] UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2013

[14] UK Engineering and Physical Sciences Research Council (EPSRC). Grant Proposal Reviewer, 2012

[13] European Commission FP7 Framework Programme. Project Reviewer, 2016

[12] European Commission FP7 Framework Programme. Project Reviewer, 2015

[11] European Commission FP7 Framework Programme. Project Reviewer, 2014

[10] European Commission FP7 Framework Programme. Project Reviewer, 2013

[9] European Commission FP7 Framework Programme. Grant Proposal Reviewer, 2012

[8] Greek Secretariat for Research and Technology. Grant Proposal Reviewer, 2010

[7] U.S.–Israel Binational Science Foundation. Grant Proposal Reviewer, 2009

[6] United States National Science Foundation. Panelist, 2008

[5] Natural Science and Engineering Research Council of Canada. Grant Proposal Reviewer, 2007

[4] United States National Science Foundation. Panelist, 2004

[3] United States National Science Foundation. Panelist, 2003

[2] United States National Science Foundation. Panelist, 2002

[1] Maryland Industrial Partnerships Program. Grant Proposal Reviewer, 2007

Conference Panels

[8] *Fifth International Workshop on Extreme Scale Programming Models and Middleware*. Held in conjunction with SC2020. When one size doesn't fit all: programming models in the post-Moore era. Panelist. November 2020.

[7] *EPSRC Workshop on Manycore Computing: Hardware and Software*. Panelist. Southampton, UK, January 2018.

[6] Heterogeneous and/or Homogeneous computing supporting parallel applications Which are the key driving factors for the application developers and platform designers? Are they cooperating or fighting? *6th Workshop on Parallel Programming and Run-Time Management Techniques for Many-core Architectures* ***(PARMA-DITAM 2015)*** . Panelist. January 2015.

[5] *IBM Research ExaChallenge Symposium*. Panelist. Dublin, Ireland, October 2012.

[4] Accelerators: Fad, Fashion, or Future? *39th International Conference on Parallel Processing* ***(ICPP)***. Panelist. September 2010.

[3] Key Challenges Presented by Next Generation Hardware Systems. *Fall Creek Falls Conference*. Panelist. September 2007.

[2] Invitee, *Microsoft Faculty Research Summit*. Redmond, WA, September 2007.

[1] NSF Next Generation Systems Software Program. *15th ACM International Conference on Supercomputing* ***ICS***. Panelist. June 2001.

Public Engagement

[7] Cardinal News. On the Societal Implications of Datacenters. May 2025.

[6] VT Science Corner. A Way to Democratize AI. Roanoke Times. link. January 2024.

[5] Queen's Researchers in Bid to Develop the Fastest Supercomputers. Newswise. link. February 2015.

[4] NNTV Behind the Science. On the Importance of Supercomputers. 2015.

[3] Horizon2020 Focus Workshops in Northern Ireland and the UK. March–September 2014.

[2] Faster than 50 Million Laptops: The Race Goes to Exascale. Interview link

[1] Big Iron Move Toward Exascale. Interview link

Invited Seminars and Talks

[54] SWEET: System Architectures and Programming Abstractions for Resilient and Efficient Edge AI, Discover-US Webinar, European Commission, Virtual Event, April 2025.

[53] Sustainable AI from the Viewpoint of an AI Skeptic, Distighuished Speaker Seminar, Department of Computer Engineering and Informatics, Virtual Event, December 2024.

[52] Programming Models for High-Performance Computing: Key Drivers and Barriers to Adoption, Invited Talk, First NI-HPC Users Conference, Virtual Event, October 2021.

[51] Why Should We Still be Concerned about Energy Management in System Software?, Invited Talk, 12th International Green and Sustainable Computing Conference, Virtual Event, October 2021.

[50] From Approximate to Significance-Driven to Transprecision Computing: Challenges and Opportunities, Distinguished Speaker Seminar, Department of Computational Science, ETH Zurich, April 2018.

[49] Virtualizing Any Accelerator Anywhere, Distinguished Speaker Seminar, Department of Computer Science, College of William and Mary, January 2018.

[48] The Jevons Paradox in Computing Systems Research, Distinguished Lecture Series, Department of Computer Science, Virginia Tech, November 2016.

[47] *Computational Significance and its Implications for HPC*, 13th Workshop on Clusters, Clouds, and Data for Scientific Computing **(CCDSC'16)** , Chemin de Chanzé, France, October 2016.

[46] *Computational Significance and its Implications for Computing Systems*, School of Electrical and Electronic Engineering, Newcastle University, October 2016.

[45] *Scaling Up, Out, or Down*, School of Informatics, University of Edinburgh, March 2016.

[44] *Significance-Driven Runtime Systems*, RoMoL'16 Workshop, Barcelona, Spain, March 2016.

[43] *Advances in Energy-Efficient and Resilient HPC: Scaling Up, Out, or Back?*, Cardiff University, March 2016.

[42] *Variability: Why should we care?*, Birds of a Feather Session on Variability in Large-Scale Computing Systems, held in conjunction with the SC'15 Conference, Austin, TX, November 2015.

[41] *New Approaches to Energy-Efficient and Resilient HPC*, Department of Computer Science, Old Dominion University, November 2015.

[40] *HPDC Research at Queen's: An Overview*, ARM High-Performance Computing Group, Manchester, UK, November 2015.

[39] *Server Resource Provisioning for Real-Time Analytics using Iso-Metrics*, Workshop on Performance Modeling: Methods and Applications, in conjunction with the 2015 International Supercomputing Conference **(ISC'15)** , Frankfurt, Germany, July 2015.

[38] *Evaluating Servers using Iso-Metrics: Power, Performance and Programmability Implications.* Eighth Workshop on Programmability Issues for Heterogeneous Multicores **(MULTIPROG'15)**, Amsterdam, The Netherlands, January 2015.

[37] *The Challenges and Opportunities of Micro-Servers in the HPC Ecosystem*, 12th Workshop on Clusters, Clouds, and Data for Scientific Computing **(CCDSC'14)** , Chemin de Chanzé, France, October 2014.

[36] *NVRAM as a User-Level Object Store.* HiPEAC Autumn Computing Systems Week, Athens, Greece, October 2014.

[35] *On the Viability of Microservers for Real-Time Data Analytics.* HiPEAC Autumn Computing Systems Week, Athens, Greece, October 2014.

[34] *NanoStreams: A Hardware and Software Stack for Real-Time Analytics on Fast Data Streams*. Horizon 2020 – the HPC Opportunity, London, United Kingdom, March 2014.

[33] *GEMSCLAIM: Greener Mobile Systems by Cross-Layer Energy Management*. CHIST-ERA 2014 Projects Seminar, Istanbul, Turkey, March 2014.

[32] *Searching for Data: The Ever-Increasing Role of Memory Hierarchies on the Performance and Sustainability of Computing Systems*. Inaugural Lecture, Queen's University of Belfast, March 2013.

[31] *Energy as a Resource in Parallel Programs*. Supercomputing'12 Birds-of-a-Feather Session on *Cool Supercomputing*, November 2012.

[30] *Block-Level Dynamic Dependence Analysis for Task-Based Parallelism*. *Workshop on Perspectives on Parallel Numerical Linear Algebra*, Manchester, UK, July 2012.

[29] *Software Techniques for Energy Conservation in High-End Computing Systems*. Invited Seminar, School of Computer Science, University of Manchester, UK, March 2012.

[28] *Energy Efficiency at Extreme Scale Tools and Challenges*. Supercomputing'11 Birds-of-a-Feather Session on *Energy-Efficiency*, November 2011.

[27] *Rearchitecting MapReduce for Heterogeneous Multicore Processors with Explicitly Managed Memories*. School of Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast. October 2010.

[26] *Determinism in Parallel Software and Architectures*. HiPEAC Systems Week Cluster Meetings, Barcelona, October 2009.

[25] *Parallelizing Non-trivial Applications with Multiple Programming Models*. HiPEAC Systems Week Cluster Meetings, Barcelona, October 2009.

[24] *Uniform Evaluation of Programming Models*. HiPEAC Systems Week Cluster Meetings, Paris, November 2008.

[23] *Unifying Layered Parallelism on the Cell BE*. Supercomputing'07 Birds-of-a-Feather Session on *Unleashing the Power of the Cell Broadband Engine Processor for HPC*, November 2007.

[22] *Unified Scheduling of Polymorphic Parallelism on Asymmetric Multi-core Systems*. Lawrence Livermore National Laboratory. October 2007.

[21] *System Software for Scaling on Many Cores*. Oak Ridge National Laboratory. September 2007.

[20] *Design and Implementation of Time- and Power-Efficient Software Stacks for Multicore Processors*. IBM Thomas J. Watson Research Center. December 2006.

[19] *Design and Implementation of Time- and Power-Efficient Software Stacks for Multicore Processors*. Department of Computer Science, North Carolina State University. September 2006.

[18] *Hardware Event-Driven Scalability Predictors: Improving Energy-Efficiency under Hard Performance Constraints on Multi-core and Multi-threaded Architectures*. Department of Electronic and Computer Engineering, Technical University of Crete. June 2006.

[17] *Addressing the Challenges of Chip Multiprocessors using Autonomic Software*. Department of Computer Science, University of California, Riverside. April 2006.

[16] *Addressing the Challenges of Chip Multiprocessors using Autonomic Software*. Department of Electrical and Computer Engineering, University of British Columbia. March 2006.

[15] *High-Performance Power-Efficient Runtime Environments for Dense Computing Systems*/ Department of Computer Science, Virginia Tech. February 2006.

[14] *High-Performance Power-Efficient Runtime Environments for Dense Computing Systems*. Institute of Computer Science, Foundation for Research and Technology – Hellas. June 2005.

[13] *High-Performance Power-Efficient Runtime Environments for Dense Computing Systems*. Department of Computer Engineering and Informatics, University of Patras. June 2005.

[12] *A Unified Programming Framework for Multigrain Multithreaded Architectures*. Institute of Computer Science, Foundation for Research and Technology – Hellas. June 2004.

[11] *A Unified Programming Framework for Multigrain Multithreading*. School of Electrical and Computer Engineering, National Technical University of Athens. June 2004.

[10] *A Unified Programming Framework for Multigrain Multithreading*. Department of Computer Science, University of California at Riverside. April 2004.

[9] *A Unified Programming Framework for Multigrain Parallel Architectures*. Department of Electrical and Computer Engineering, Northwestern University. February 2004.

[8] *Program Transformations and Scheduling Algorithms for Managing Shared Caches on Multithreaded Processors*. Department of Informatics, Athens University of Economics and Business. June 2003.

[7] *Program Transformations and Scheduling Algorithms for Managing Shared Caches on SMT Processors*. IBM Thomas J. Watson Research Center. March 2003.

[6] *Building Adaptive Programs with Local Sensing of Execution Conditions*. Department of Computer Science, Texas A&M University. March 2003.

[5] *Interoperable System Software*. Department of Information and Computer Sciences, University of California, Irvine. April 2002.

[4] *Interoperable System Software*. Department of Computer Science, College of William and Mary. March 2002.

[3] *Scaling Shared-Memory Programming Models beyond Shared-Memory Architectures*. Department of Computer Science, University of Houston. November 2001.

[2] *Some Steps towards Simple, Scalable and Portable Parallel Programming Models*. Department of Computer Science, College of William & Mary. October 2001.

[1] *A Case for User-Level Page Migration*. Coordinated Sciences Laboratory, University of Illinois at Urbana-Champaign. January 2001.